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30 June 1998

Ms. Ana Veloz-Townsend  
Site Cleanup Unit  
California Regional Water Quality Control Board, Los Angeles Region  
101 Center Plaza Drive  
Monterey Park, California 91754

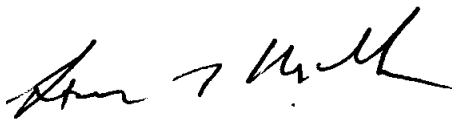
Subject: Phase II Groundwater Investigation Report for the Jervis B. Webb Company Property  
at 5030 Firestone Boulevard in South Gate, California  
(EKI 961025.02)

Dear Ms. Veloz-Townsend:

Erler & Kalinowski, Inc. is pleased to submit this *Phase II Groundwater Investigation Report* for the Jervis B. Webb Company of California property at 5030 Firestone Boulevard in South Gate, California ("Subject Property"). We request your review and comment on the findings of the report and would like to meet with you to discuss further action at the Subject Property.

Please call if you have any questions.

Very truly yours,  
ERLER & KALINOWSKI, INC.



Steven Miller, P.E. (CE 43419)  
Project Manager

cc: Eli Stanesa, Esq. (Jervis B. Webb Co.)

Attachment - Phase II Groundwater Investigation Report

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# **Phase II Groundwater Investigation Report**

Jervis B. Webb Company Property  
5030 Firestone Boulevard  
South Gate, California

**30 June 1998**

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**Phase II Groundwater Investigation Report**  
**Jervis B. Webb Company Property**  
**5030 Firestone Boulevard, South Gate, California**

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**Phase II Groundwater Investigation Report**  
**Jervis B. Webb Company Property**  
**5030 Firestone Boulevard, South Gate, California**

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## **1. INTRODUCTION**

Erler & Kalinowski, Inc. ("EKI") is pleased to present this *Phase II Groundwater Investigation Report* for the property owned by the Jervis B. Webb Co. ("Webb") and located at 5030 Firestone Boulevard in South Gate, California ("Subject Property" or "Site;" see Figure 1). The principal objectives of this investigation were to determine if volatile organic compounds ("VOCs") detected in samples of soil collected at the Subject Property are also present in groundwater beneath the Site and to estimate the direction of groundwater flow beneath the Site.

Phase II investigations of areas of environmental concern and vadose zone soil at the Subject Property were completed by EKI from October through December 1997. Chemical analyses of several samples of soil collected at the Site detected two VOCs, trichloroethene ("TCE") and tetrachloroethene ("PCE"). The highest concentrations of TCE (270 milligrams per kilogram or mg/kg) and PCE (140 mg/kg) were detected in samples of soil collected at depths of 20 feet to 46 feet beneath the ground surface ("ft bgs") near the clarifier and former anodizing areas of the Site. It was concluded by Webb that two VOCs, TCE and PCE, were present in vadose zone soil at the Subject Property at concentrations which warranted further investigation. The results of the Phase II soil investigation were reported in EKI's *Phase II Soil Investigation Report* for the property located at 5030 Firestone Boulevard in South Gate, California, dated 18 February 1998 ("Phase II Soil Report").

In a meeting attended by staff of EKI and the California Regional Water Quality Control Board, Los Angeles Region ("RWQCB") on 6 February 1998, staff of the RWQCB indicated that they concurred with EKI's presentation of the findings of the Phase II soil investigation, and stated that the next phase of investigation at the Subject Property should include sampling and analysis groundwater at both on-site and off-site locations.

The Phase II groundwater investigation documented in this report included installation and sampling of three groundwater monitoring wells and additional characterization of subsurface soil at the Subject Property. Groundwater was sampled from the three on-site wells on 4 March 1998 and on 20 May 1998. In addition, samples of groundwater were collected from two off-site groundwater monitoring wells owned by the Dial Corporation ("Dial"), located south of the Subject Property along Rayo Avenue, during the groundwater monitoring event 20 May 1998.

EKI's investigations of the Subject Property were performed in accordance with applicable guidelines and general requirements of the RWQCB concerning subsurface investigations. EKI investigation activities were performed under the supervision of Mr. Steven G. Miller, P.E., a State of California registered civil engineer.

## **2. REGIONAL HYDROGEOLOGY**

Unless otherwise noted, the information provided in this section was largely obtained from the California Department of Water Resources ("DWR") *Bulletin No. 104: Planned Utilization of the Groundwater Basins of the Coastal Plain of Los Angeles County, Appendix A, Groundwater Geology*, dated June 1961.

The Subject Property is located in the Coastal Plain of Los Angeles County. Ground surface elevation at the Subject Property is roughly 110 feet above mean sea level (USGS, 1964). The surface topography of the Subject Property and vicinity appears to slope gently to the southeast in the general direction of the Los Angeles River. The Los Angeles River is located approximately 1,200 feet east of the Subject Property at its nearest location (see Figure 1).

The Subject Property is located within the Southgate-Santa Ana Depression of the Downey Plain physiographic province, an alluvial depositional feature primarily composed of Quaternary sediments. Depositional materials associated with this feature were deposited as alluvial fans formed by the Los Angeles, Rio Hondo, and San Gabriel River systems. Sediments encountered from the ground surface to the greatest depth of investigation at the Subject Property (approximately 73 ft bgs) are referred to as Recent Alluvium.

Hydrologically, the Subject Property is located within the Central Basin Pressure Area of the Los Angeles Central Groundwater Basin. According to DWR, 1961, the water-bearing geologic members of regional significance that may be encountered beneath the Subject Property are, with increasing depth, the Bellflower Aquiclude and the Gaspur (or Exposition) Aquifer of the Recent Alluvium, the Exposition (or Gaspur) and Gage Aquifers of the upper Pleistocene Lakewood Formation, and the Hollydale, Jefferson, Lynwood, and Silverado Aquifers of the lower Pleistocene San Pedro Formation. Referring to maps in DWR, 1961, the groundwater encountered at the Subject Property during the investigation described in this report appears to occur within sediments the Bellflower Aquiclude and may be directly underlain by saturated sediments of the either the Gaspur Aquifer or the Exposition Aquifer (these aquifers are in contact near the Subject Property). The bottom of the Exposition Aquifer may occur at approximately 170 ft bgs near the Subject Property, according to DWR, 1961. Although no data is presented in the vicinity of the Subject Property, it can be inferred from maps in the DWR, 1961 report that the base of the freshwater-bearing sediments near the Subject Property probably occurs near 3,000 ft bgs.

According to the Water Replenishment District of Southern California ("WRDSC"), deep aquifer (probably the Silverado Aquifer) groundwater contours for water year 1995-1996 indicate southwesterly trending groundwater flow from the Whittier Narrows area into the

Central Basin Pressure Area with a gradient of approximately 0.007 feet per foot (WRDSC, 1997).

The City of South Gate supplies water to the Subject Property and the surrounding area. The City has 14 water supply wells of which 11 are currently active. At least four of the active wells have been found to contain PCE and so extracted groundwater from these wells is being treated (telephone conversation between Mr. John Chambers, City of South Gate and Mr. Steven Miller of EKI on 29 April 1996.)

Water quality has been monitored at several City of South Gate wells near the Subject Property by the WRDSC. The following table identifies the chlorinated VOCs detected in wells monitored by the WRDSC that are located within approximately one-half mile of the Subject Property (WRDSC, 1995):

South Gate Well No.	Approximate Distance/ Direction from the Subject Property	Approximate Screen Interval (ft bgs)	Aquifer Screened	VOC(s) Detected
7	1/4 mile-northwest	-	Lynwood	TCE, PCE, 1,1-DCE
13	1/2 mile-southwest	-	Silverado	PCE
14	1/2 mile southwest	745-767	Silverado	PCE
18	1/2 mile-southwest	600-758	Silverado	PCE
19	1/2 mile-southwest	610-746	Silverado	PCE
23	1/4 mile-southeast	530-798	Lynwood & Silverado	PCE
25	1/2 mile-east-southeast	-	Exposition & Gage	TCE, PCE

Based on groundwater monitoring data from the former Dial Corporation facility, located across Rayo Avenue, just east of the Subject Property, groundwater flows in a southerly direction at a gradient of approximately 0.003 feet/foot. The depth to groundwater in two monitoring wells located along Rayo Avenue ranged from about 45 to 55 feet below ground surface from April 1992 to April 1995 (see wells DIAL MW-4 and DIAL MW-5 on Figure 2). One well on the Dial Corporation site was found to have shallower perched groundwater (data in this paragraph were taken from EMCON, 1995).

### **3. FIELD PROCEDURES**

The principal objectives of this field investigation were to determine if the VOCs detected in samples of soil collected at the Site were also present in groundwater and to estimate the direction of groundwater flow beneath the Site. To accomplish these objectives, three groundwater monitoring wells were installed at the Subject Property on 24 and 25 February 1998 by the West Hazmat Drilling Corporation ("West Hazmat") of Anaheim, California. The locations of monitoring wells MW-1, MW-2, and MW-3 are shown on Figure 2. Additional samples of soil were also collected and analyzed during the installation of the groundwater wells to provide additional data for characterization of the distribution of VOCs in the vadose-zone soil beneath the Subject Property.

West Hazmat completed development of the new groundwater wells on 2 March 1998. EKI measured the depth to groundwater in wells MW-1, MW-2 and MW-3 on 27 February, 2 and 4 March, 8 April, and 20 May 1998. On 4 March 1998 and 20 May 1998, the three wells were purged and samples of groundwater were collected for chemical analyses. In addition, samples of groundwater were collected on 20 May 1998 from two off-site groundwater monitoring wells (DIAL MW-4 and DIAL MW-5) located south of the Subject Property along Rayo Avenue.

Field and analytical procedures observed during the installation, development and sampling of groundwater wells are described in the following sections. Well construction details for the monitoring wells are provided in Table 1. Analytical results for samples of collected from the soil borings for the monitoring wells are provided in Table 2. The depths to groundwater measured in the monitoring wells are provided in Table 3 and the analytical results for samples of groundwater collected from the wells are provided in Table 4. Boring logs containing lithologic descriptions of soil and depths of soil samples retained for analysis are provided in Appendix A. Laboratory reports and Chain-of-Custody forms for soil samples are attached in Appendix B. Groundwater purge and water quality monitoring forms for well development and groundwater sampling events are attached in Appendix C. Laboratory reports and Chain-of-Custody forms for groundwater samples are attached in Appendix D.

#### **3.1. Drilling, Soil Sampling, and Well Construction Procedures**

##### **3.1.1. Utility Clearance**

During completion of EKI's previous soil investigations at the Subject Property on 24 October 1997 and 1 December 1997 (see the Phase II Soil Report), geophysical surveys of the site were performed by Spectrum Environmental Services, Inc. of San Fernando,



California. During these subsurface geophysical surveys, utilities crossing portions of the site near proposed work areas were delineated on the ground surface with painted lines. Because wells MW-1, MW-2, and MW-3 were located in areas previously investigated by Spectrum, no additional investigation of subsurface utilities was performed prior to installation of these wells. Underground Services Alert ("USA" or Dig Alert) was notified 48-hours prior to the commencement of ground penetrating activities on 24 and 25 February 1998.

### 3.1.2. Drilling and Soil Sampling Procedures

Coring of soil and installation of groundwater monitoring wells at the Subject Property was performed by West Hazmat on 24 and 25 February 1998. EKI performed lithologic logging and selection of soil samples for chemical analysis. Soil characterization was performed in accordance with the Unified Soil Classification System. Descriptions of soil color were graded using to Munsell Soil Color Chips. Soil boring logs (see Appendix A) were approved by Ms. Beth Lamb, R.G., C.E.G., C.H. of EKI, a State of California registered geologist.

Four soil borings were completed by West Hazmat at the Subject Property on 24 and 25 February 1998 to maximum depths of approximately 73 ft bgs at the Subject Property and three of these soil borings were converted to groundwater monitoring wells (MW-1, MW-2, and MW-3). The first soil boring drilled for construction of well MW-2 was abandoned during construction of the well due to fouling of the sand filter pack by water-saturated drill cuttings during construction. A second soil boring, located approximately 10 feet northwest of the first soil boring, was then completed and converted to groundwater monitoring well MW-2 (see Appendix A). The locations of the groundwater monitoring wells MW-1, MW-2, and, MW-3 are shown on Figure 2.

Soil borings were completed using a CME-75 hollow-stem auger drilling rig and utilized 10.25-inch outer-diameter augers. Samples of soil were collected using a 1.5-foot long by 2-inch outer-diameter, California-modified split-spoon sampler. The soil sampler, containing four pre-cleaned, 6-inch brass liners, was driven approximately 18 inches into undisturbed soil at each sampling interval, then retrieved and disassembled. One of two sample liners was retained for laboratory chemical analysis at each sampling interval. The remaining sample liners were utilized for soil characterization. Soil samples not retained for laboratory testing were placed into a labeled, DOT-approved, 55-gallon drum. Soil cuttings generated during completion of soil borings were placed in labeled, DOT-approved, 55-gallon drums. The drums of soil are being stored at the Site for eventual disposal by Webb.

Soil sample liners retained for laboratory chemical analysis were removed from the sampler and separated with a clean knife. The ends of the brass tube containing each sample were covered with Teflon® sheets and capped with plastic end caps. A sample label that included a unique sample identification number, the sample depth, the time, and the date when the sample was collected was attached to each brass liner. Samples to be delivered to the

laboratory for chemical analysis were sealed in zip-lock plastic bags and placed in a cooler with ice for temporary storage and transport to the laboratory. Chain-of-Custody forms were initiated in the field and included with the samples. Chain-of-Custody forms are included in Appendix B.

All down-hole pieces of the soil boring and sampling equipment were decontaminated prior to their use and between sample locations. Between sampling intervals, the soil sampling tools and brass sample liners were cleaned in a non-phosphate detergent solution in water, then rinsed in potable and distilled water. The rinse water generated during decontamination was contained on-site in labeled, DOT-approved, 55-gallon drums. The drums of waste water are being stored at the Site for eventual disposal by Webb.

### 3.1.3. Well Construction

Upon completion of boreholes, threaded, pre-cut well materials were assembled and inserted into the boreholes within the hollow-stem augers. Installation of filter packs and seal materials for the wells was then completed. All wells were terminated below grade within a well vault. Details of the construction of each well are shown in Table 1 and on the boring logs provided in Appendix A.

The well design and materials selected were based on soil characterization performed during the Phase II soil investigation completed at the Subject Property in December 1997 (see the Phase II Soil Report). All wells were constructed with Schedule 40 polyvinyl chloride ("PVC") screen, with 0.010-inch machine-slotted perforations, and Schedule 40 PVC blank casings. All wells were constructed with a 30-foot long perforated screen interval terminated at approximately 70 ft bgs.

All wells were constructed with sand filter packs consisting of Lonestar #1C clean sand. Filter packs were installed into the well annulus by pouring the filter sand down the inside of the auger around the well casing. As the sand was poured, the augers were gradually retracted until the desired level of the filter pack was reached. Filter pack materials were poured slowly into the borehole and tamped into place in order to avoid bridging of the sand pack. Filter packs generally extended approximately two vertical feet above the elevation of the top of screen. Approximately five vertical feet of bentonite chips were then introduced to the top of the filter pack and thoroughly hydrated to form the well transition seal. The groundwater wells were completed from the top of the transition seal to near ground surface using a bentonite slurry poured down the inside of the auger casing.

Completion of each well at the surface consisted of trimming off excess casing below grade and placing an expansion plug or slip-cap on the top of the well casing. Concrete was used to complete the remaining several feet of the borehole annulus to ground surface. A locking brace and 12-inch round well vault with a bolt-down steel cover was cemented into place around each well casing.

On 6 March 1998, the elevations and northing and easting locations of the well casings at MW-1, MW-2, and MW-3 were surveyed by Rattray & Associates, Inc. ("Rattray") of Los Angeles, California. In addition, Rattray surveyed several corners of the on-site building and property corners at the Subject Property. The northing and easting locations and elevations of the well box covers of the two Dial Corporation wells (DIAL MW-4 and DIAL MW-5) located along Rayo Avenue were also surveyed by Rattray on 6 March 1998. Well-casing elevations are shown in Table 3.

### **3.2. Groundwater Well Development**

The groundwater monitoring wells were developed by West Hazmat on 2 March 1998. Groundwater purge and water quality monitoring forms for the well development are attached in Appendix C.

The groundwater wells were developed by bailing sediment from the bottom of the well, surging, and continued bailing until the sediment content of extracted well water was below approximately 2 ml/L of water by volume. The screened interval of each well was surged using a surge block and rod attached to a cable and pulley operating from the extended tower of the development rig. After bailing and surging, the wells were purged of approximately 5-8 casing volumes using a submersible, electric pump. All down-hole equipment was thoroughly steam cleaned before use at each well.

During purging, groundwater quality parameters were recorded by EKI (temperature, pH, conductivity, and turbidity). Water quality monitoring equipment was calibrated prior to commencement of the development. For each purge sample, the time, water quality parameters, and volume of purged groundwater were recorded on field purge forms (see Appendix C). Purging at each well was continued until water quality parameters stabilized to within approximately 10%. Groundwater quality parameters were generally stable after purging three casing volumes of water from each well, and final turbidity was generally low, between 3 and 5 NTU.

### **3.3. Groundwater Sampling Procedures**

Groundwater samples were collected from wells MW-1, MW-2, and MW-3 on 4 March and 20 May 1998. During the 20 May 1998 groundwater monitoring event, groundwater samples were also collected from two Dial Corporation wells (Dial MW-4 and Dial MW-5) located south of the Subject Property along Rayo Avenue. Groundwater purge and water quality monitoring forms for both groundwater sampling events are attached in Appendix C.

Prior to sampling of groundwater, each well was purged of a minimum of three well-casing volumes of groundwater using a submersible, electric pump. Groundwater purging was

performed by West Hazmat and groundwater samples were collected by EKI. All down-hole equipment was thoroughly steam cleaned before use at each well.

During purging of groundwater on 4 March and 20 May 1998, groundwater quality parameters were recorded by EKI (temperature, pH, conductivity, and turbidity). Water quality monitoring equipment was calibrated prior to commencement of groundwater purging. For each purge sample, the time, water quality parameters, and volume of purged groundwater were recorded on field purge forms (see Appendix C). Purging at each well was continued until parameters stabilized to within approximately 10%. During both groundwater sampling events, groundwater quality parameters were generally stable after purging three casing volumes of water from each well. Final turbidity was generally low, between 0.5 and 7.5 NTU at all wells sampled during both events (see Appendix C).

On 4 March 1998, groundwater samples were collected by EKI from wells MW-1, MW-2, and MW-3 using a bottom-emptying Teflon® bailer. Prior to sampling at each well, the bailer was disassembled and each piece of equipment thoroughly washed in a non-phosphate detergent solution in water, followed by rinsing with potable and distilled water. An equipment rinsate blank was collected from the sampling bailer immediately following sample collection at the first sampled well, MW-2, and prior sampling at well MW-3. Monitoring well MW-1 was the last well sampled on 4 March 1998.

On 20 May 1998, groundwater samples were collected by EKI from Webb wells MW-1, MW-2, and MW-3 and at the two Dial Corporation wells, DIAL MW-4 and DIAL MW-5, located along Rayo Avenue, south of the Subject Property (see Figure 2). Both of the wells owned by the Dial Corporation appeared to be in good condition and were purged and sampled using procedures completed for groundwater wells at the Webb Site. Groundwater samples were collected by EKI using a new, disposable polyethylene plastic bailer at each well. The groundwater monitoring wells were sampled in order as follows: MW-2, MW-3, MW-1, DIAL MW-4 and DIAL MW-5.

During both sampling events, a sample label was attached to each water sample container. A sample label that included a unique sample identification number, the time, and the date when the sample was collected was attached to each container. Groundwater samples were sealed in zip-lock plastic bags and placed in a cooler with ice for temporary storage and transport to the laboratory. A travel blank, which accompanied the sample bottles from the laboratory to the Site, was returned to the laboratory unopened. Chain-of-Custody forms were initiated in the field and included with the samples. Chain-of-Custody forms are included in Appendix D.

## **4. RESULTS OF SOIL SAMPLING AND ANALYSIS**

### **4.1. Characterization of Soil**

Soil present in the vadose zone beneath the Subject Property is predominantly composed of silt with variable clay and sand content. However, predominantly clayey and sandy soils are also present. The vadose zone is characterized by interbedded clay, silt and sand layers, some of which may be continuous throughout the investigation area.

The sediments observed at the Subject Property may be correlated with the Downy Plain alluvium as discussed in Section 2. Given the reported nature of deposition for the Downey Plain Alluvium, i.e., stream channel and overbank splay deposits associated with the Quarternary fluctuations of Los Angeles River, it is possible that the soil stratigraphy observed at the Subject Property is variable laterally as well as vertically in the immediate vicinity of the property.

Several recognizable soil layers were observed to be present in soil borings MW-1, MW-2, and MW-3. These soil types were also observed in soil borings logged during EKI's previous investigations at the Subject Property in December 1997 (see the Phase II Soil Report). In soil borings MW-1, MW-2, and MW-3, a moderately to highly plastic clay unit approximately 4 feet in thickness was observed at depths ranging from approximately 20 to 26 ft bgs. This unit was also observed in variable thicknesses in soil borings B15 through B19, completed at the Subject Property in December 1997. This clay unit is overlain and underlain by silty soil in soil borings MW-1, MW-2, and MW-3, and B15 through B19.

A pronounced sandy unit previously observed in soil borings B15 through B19 at a depth of approximately 34 to 36 ft bgs was also observed in soil borings MW-1, MW-2, and MW-3 at depths ranging from 35 to 37 ft bgs. This unit was observed to vary in thickness from approximately 3 to 5 feet in soil borings MW-1, MW-2, and MW-3. A second, more pronounced sandy unit was observed at depths near 65 ft bgs in soil borings MW-1 and MW-2 and near 60 ft bgs in soil boring MW-3. The lower contact of this sandy unit was not observed within the total depth (73 ft bgs) of sampling at each location (see Appendix A).

### **4.2. Analytical Results for Soil**

Samples of soil collected on 24 and 25 February 1998 were analyzed by Orange Coast Analytical, Inc. ("Orange Coast") of Tustin, California for VOCs using U.S. Environmental Protection Agency ("EPA") Method 8010. Nine samples of soil were collected from soil borings MW-1, MW-2, and MW-3 at depths of approximately 10 ft bgs, 20 ft bgs, and

30 ft bgs and submitted to Orange Coast for analysis. The analytical results for the chemical analyses of soil samples are summarized in Table 2. Chain-of-Custody forms and laboratory reports for the soil samples are attached in Appendix B.

The results of chemical analyses of soil samples collected from soil borings MW-1, MW-2, and MW-3 indicate that PCE and TCE were the only analytes detected at concentrations above method detection limits in these samples. PCE and TCE were detected in soil samples collected from soil boring MW-1 at maximum concentrations of 23 micrograms per kilogram ("ug/kg") and 62 ug/kg, respectively. No analytes were detected above method detection limits in the soil samples collected from soil borings MW-2 and MW-3.

#### 4.2.1. Quality Assurance/Quality Control for Soil Chemical Analyses

Standard laboratory QA/QC procedures used for the project included method blanks and matrix spikes/matrix spike duplicates. Percent recovery of matrix spikes and matrix spike duplicates were within acceptable ranges. No analytes were detected in the method blanks analyzed for the project. QA/QC results are provided with the laboratory reports in Appendix C.

## **5. RESULTS OF WELL GAUGING AND GROUNDWATER ANALYSES**

### **5.1. Measurements of Groundwater Elevation**

The depth to groundwater in monitoring wells MW-1, MW-2, and MW-3 was measured on 27 February, 2 and 4 March, 8 April, and 20 May 1998. The depth to groundwater measurements was also measured in monitoring wells DIAL MW-4 and DIAL MW-5 on 20 May 1998. These data are provided in Table 3. Contours representing the elevation of the groundwater table on 20 May 1998 are shown on Figure 3.

As inferred from the contours of groundwater elevation shown on Figure 3, the direction of groundwater flow in the groundwater table aquifer beneath the Subject Property is primarily toward the southeast. Using the data in Table 3, the elevation of the groundwater table at wells MW-1, MW-2, and MW-3 increased an average distance of 0.7 feet from 27 February 1998 through 20 May 1998.

As noted in Table 3, the top-of-casing elevations of the reference points used by EKI for gauging depth to water at the Dial wells were not surveyed by Rattray on 6 March 1998. However, based on measurements conducted in the field and survey data for the tops of the well box lids for DIAL MW-4 and DIAL MW-5, approximate top-of-casing reference point elevations have been calculated.

### **5.2. Analytical Results for Groundwater Samples**

Samples of groundwater were collected from monitoring wells MW-1, MW-2, and MW-3 on 4 March and 20 May 1998. Samples of groundwater were collected from monitoring wells DIAL MW-4 and DIAL MW-5 on 20 May 1998. In addition, a duplicate sample of groundwater was collected from well MW-1 during the sampling event on 4 March 1998. All samples of groundwater were submitted to Orange Coast for chemical analyses. The samples collected on 4 March 1998 were analyzed for VOCs using EPA Method 8260. The samples collected on 20 May 1998 were analyzed by Orange Coast for VOCs using EPA Method 8260 and for total dissolved solids ("TDS") using EPA Method 160.1. The analytical results for groundwater samples collected during this investigation are summarized in Table 4. Concentrations of TCE detected in groundwater samples are shown on Figure 2. Chain-of-Custody forms and laboratory reports are attached in Appendix D.

Although several VOCs were detected in the samples of groundwater collected on 4 March and 20 May 1998, TCE was the predominant VOC detected in each sample. The maximum

concentrations of TCE detected in the samples of groundwater collected from on-site monitoring wells MW-1, MW-2, and MW-3 on 4 March 1998 were 25,000 ug/L, 3,000 ug/L, and 2,800 ug/L, respectively. The concentrations of TCE detected in the samples of groundwater collected from the off-site monitoring wells DIAL MW-4 and DIAL MW-5 were 16 ug/L and 28 ug/L, respectively. The chemical analyses performed on the samples of groundwater collected on separate dates from the on-site monitoring wells MW-1, MW-2, and MW-3 provided similar results.

In addition to TCE, PCE, cis and trans 1,2-dichloroethene ("cis and trans 1,2-DCE"), 1,1-dichloroethene ("1,1-DCE"), 1,1-dichloroethane ("1,1-DCA"), and toluene were detected in the samples of groundwater collected from on-site wells MW-1, MW-2, and MW-3. In each sample of groundwater collected from the on-site monitoring wells, the concentrations of these additional chemicals that were detected were generally at least a factor of ten lower than the concentration of TCE detected in the same sample.

The chemical signatures of the samples of groundwater collected from the off-site monitoring wells, DIAL MW-4 and DIAL MW-5, were somewhat different than the chemical signatures of the samples of groundwater collected from the on-site wells in that:

- PCE, 1,1-DCE, and 1,1-DCA were not detected in the samples collected from the off-site monitoring wells, and
- benzene, xylenes, and 1,2-dichloroethane ("1,2-DCA") were detected in the samples of groundwater collected from the off-site wells, but were not detected in any of the samples collected from the on-site monitoring wells.

The concentrations of TDS detected in the samples of groundwater collected from on-site monitoring wells MW-1, MW-2, and MW-3 ranged from 1,100 mg/L to 2,500 mg/L. The concentrations of TDS detected in the samples of groundwater collected from off-site monitoring wells DIAL MW-4 and DIAL MW-5 were 1,300 mg/L and 6,300 mg/L, respectively.

#### 5.2.1. Quality Assurance/Quality Control for Soil Chemical Analyses

Standard laboratory QA/QC procedures used for the project included analysis of method blanks and matrix spikes/matrix spike duplicates. Percent recovery of matrix spikes and matrix spike duplicates was within acceptable ranges. No analytes were detected in the method blank samples analyzed for this project. QA/QC results are provided with the laboratory reports in Appendix D.



## **6. SUMMARY**

The principal objectives of this investigation were to determine if VOCs detected in samples of soil collected at the property owned by the Jervis B. Webb Co. in South Gate, California are also present in groundwater beneath the Site and to estimate the direction of groundwater flow beneath the Site. During previous investigations at the Subject Property, TCE and PCE were detected at maximum concentrations of 270 mg/kg and 140 mg/kg, respectively, in samples of soil collected near the clarifier and former anodizing operations at the Site. The groundwater investigation documented in this report included installation and sampling of three on-site groundwater monitoring wells, sampling of two off-site groundwater monitoring wells, and additional characterization of subsurface soil at the Subject Property.

Three groundwater monitoring wells were installed at the Subject Property on 24 and 25 February 1998. The wells are screened in the groundwater table aquifer beneath the Site at depths ranging from 40 ft bgs to 70 ft bgs. The greatest depth of investigation at the Subject property thus far is 73 ft bgs.

Samples of soil were collected from the soil borings drilled for installation of the new groundwater monitoring wells for chemical analysis and characterization of soil. Nine samples of soil were collected from soil borings MW-1, MW-2, and MW-3 at depths of approximately 10 ft bgs, 20 ft bgs, and 30 ft bgs and submitted to an analytical laboratory for analysis of VOCs. PCE and TCE were detected in soil samples collected from soil boring MW-1 at maximum concentrations of 23 ug/kg and 62 ug/kg, respectively. No analytes were detected above method detection limits in the soil samples collected from soil borings MW-2 and MW-3.

Soil present in the vadose zone beneath the Subject Property is predominantly composed of silt with variable clay and sand content. However, predominantly clayey and sandy soils are also present. The vadose zone is characterized by interbedded clay, silt, and sand layers, some of which may be continuous throughout the investigation area.

The depth to groundwater in on-site monitoring wells MW-1, MW-2, and MW-3 was measured on 27 February, 2 and 4 March, 8 April, and 20 May 1998. The depth to groundwater in the on-site wells ranged from approximately 43.5 ft bgs to 44.8 ft bgs. The depth to groundwater measurements was also measured in off-site monitoring wells DIAL MW-4 and DIAL MW-5 on 20 May 1998. As inferred from the groundwater elevation data, the direction of groundwater flow in the groundwater table aquifer beneath the Subject Property appears to be primarily toward the southeast. The elevation of the groundwater table at wells MW-1, MW-2, and MW-3 increased an average distance of 0.7 feet from 27 February 1998 through 20 May 1998.

Following development and purging, samples of groundwater were collected from monitoring wells MW-1, MW-2, and MW-3 on 4 March and 20 May 1998. Samples of groundwater were collected from monitoring wells DIAL MW-4 and DIAL MW-5 on 20 May 1998 (note that these wells were purged, but not re-developed prior to sampling). Although several VOCs were detected in the samples of groundwater collected on 4 March and 20 May 1998, TCE was the predominant VOC detected in each sample. The maximum concentrations of TCE detected in the samples of groundwater collected from on-site monitoring wells MW-1, MW-2, and MW-3 on 4 March 1998 were 25,000 ug/L, 3,000 ug/L, and 2,800 ug/L, respectively. The concentrations of TCE detected in the samples of groundwater collected from the off-site monitoring wells DIAL MW-4 and DIAL MW-5 were 16 ug/L and 28 ug/L, respectively. The chemical analyses performed on the samples of groundwater collected on separate dates from the on-site monitoring wells MW-1, MW-2, and MW-3 provided similar results.

In addition to TCE, PCE, cis and trans 1,2-DCE, 1,1-DCE, 1,1-DCA, and toluene were detected in the samples of groundwater collected from on-site wells MW-1, MW-2, and MW-3. In each sample of groundwater collected from the on-site monitoring wells, the concentrations of these additional chemicals that were detected were generally at least a factor of ten lower than the concentration of TCE detected in the same sample.

The chemical signatures of the samples of groundwater collected from the off-site monitoring wells, DIAL MW-4 and DIAL MW-5, were somewhat different than the chemical signatures of the samples of groundwater collected from the on-site wells in that:

- PCE, 1,1-DCE, and 1,1-DCA were not detected in the samples collected from the off-site monitoring wells, and
- benzene, xylenes, and 1,2-DCA were detected in the samples of groundwater collected from the off-site wells, but were not detected in any of the samples collected from the on-site monitoring wells.

The concentrations of TDS detected in the samples of groundwater collected from on-site monitoring wells MW-1, MW-2, and MW-3 ranged from 1,100 mg/L to 2,500 mg/L. The concentrations of TDS detected in the samples of groundwater collected from off-site monitoring wells DIAL MW-4 and DIAL MW-5 were 1,300 mg/L and 6,300 mg/L, respectively.

The results of this investigation indicate that several VOCs can be detected in samples of groundwater collected from three monitoring wells at the Subject Property. The elevated concentrations of TCE and PCE detected in samples of soil and groundwater collected near the clarifier and former anodizing areas of the Subject Property suggest that these chemicals may have been released on this portion of the property. However, the elevated concentrations of TCE detected in samples of groundwater collected from monitoring well MW-2 and the location of this well on the inferred up-gradient portion of the Subject property suggest that additional sources of the TCE detected in groundwater may exist to the

north of the Subject Property. In addition, the somewhat different chemical signatures of the samples of groundwater collected at the Subject Property versus those collected from the monitoring wells located off-site along Rayo Avenue suggests that the sources of chemicals detected in the samples collected from the off-site wells may not yet be completely identified.

## **7. REFERENCES**

- Bechtel Environmental, Inc., 1 September 1994. *Preliminary Assessment/Site Inspection.*
- California Department of Water Resources, 1961. *Bulletin No. 104: Planned Utilization of the Groundwater Basins of the Coastal Plain of Los Angeles County, Appendix A, Groundwater Geology.* June 1961.
- ENSR, 6 January 1998. *Results of Groundwater Sampling: Chloride and MBAS.*
- Erler & Kalinowski, Inc., 20 June 1996. *Phase I Environmental Site Assessment of the Jervis B. Webb Properties at 9301 Rayo Avenue and 5030 Firestone Boulevard in South Gate, California.*
- Erler & Kalinowski, Inc., 18 February 1998. *Phase II Investigation Report for the Jervis B. Webb Company Property at 5030 Firestone Boulevard in South Gate, California.*
- EMCON, 18 July 1995. *Progress Report - First Quarter 1995 for the Dial Corporation Facility at 9300 Rayo Avenue, South Gate, California.*
- U.S. Geological Survey, 1964, photo-revised 1981. *South Gate, California Quadrangle, 7.5 Minute Series.*
- Water Replenishment District of Southern California, 1996. *Annual Report on Results of Water Quality Monitoring, Water Year 1994-95.*
- Water Replenishment District of Southern California, 1997. *Annual Survey and Report on Groundwater Replenishment.* 1997.

**TABLE 1****Well Construction Details****Phase II Groundwater Investigation Report**

5030 Firestone Boulevard, South Gate, California

<b>Well ID</b>	<b>Installation Date</b>	<b>Boring Depth (ft bgs)</b>	<b>Boring Diameter (inches)</b>	<b>Casing Diameter (inches)</b>	<b>Perforated Interval (ft bgs)</b>	<b>Casing Material</b>	<b>Screen Material</b>	<b>Perforation Size (inches)</b>	<b>Filter Pack Material</b>	<b>Surface Completion</b>
MW-1	2/25/98	73	10-1/4	4	40 - 70	PVC	PVC	0.010	#1C Lonestar	12" EMCO
MW-2	2/25/98	73	10-1/4	4	40 - 70	PVC	PVC	0.010	#1C Lonestar	12" EMCO
MW-3	2/25/98	73	10-1/4	4	40 - 70	PVC	PVC	0.010	#1C Lonestar	12" EMCO
DIAL MW-4	6/4/92	76	10	4	45.6 - 75.4	PVC	PVC	0.020	2/12 Lonestar	12" EMCO
DIAL MW-5	6/4/92	75	10	4	40 - 69.5	PVC	PVC	0.020	2/12 Lonestar	12" EMCO

**Notes:**

1. Well construction details for wells DIAL MW-4 and MW-5 are reported in ENSR, 6 January 1998.
2. ft bgs = feet beneath the ground surface

**TABLE 2**  
**Soil Analytical Results for VOCs**  
Phase II Groundwater Investigation Report  
 5030 Firestone Boulevard, South Gate, California

Boring Number	Sample Number	Depth (ft. bgs)	Concentration	
			PCE (ug/kg)	TCE (ug/kg)
MW-1	MW1-10.5	10.5	21	18
MW-1	MW1-20.5	20.5	23	62
MW-1	MW1-30.5	30.5	11	60
MW-2	MW2-10.5	10.5	<5	<5
MW-2	MW2-20.5	20.5	<5	<5
MW-2	MW2-30.5	30.5	<5	<5
MW-3	MW3-11	11	<5	<5
MW-3	MW3-20.5	20.5	<5	<5
MW-3	MW3-30.5	30.5	<5	<5

**Notes:**

- Abbreviations: PCE = tetrachloroethene  
 TCE = trichloroethene  
 ft bgs = feet beneath ground surface  
 ug/kg = micrograms per kilogram
- Chemical analyses were performed by Orange Coast Analytical, Inc. using EPA Method 8010.
- Samples from borings MW-1, MW-2, and MW-3 collected on 24 and 25 February 1998.
- Sample depth is indicated in the sample name. Depth is indicated by the last number separated by a hyphen in each sample description. (i.e. sample MW1-10.5 collected at 10.5 ft bgs.

**TABLE 3**  
**Groundwater Elevations in Monitoring Wells**  
Phase II Groundwater Investigation Report  
 5030 Firestone Boulevard, South Gate, California

Well ID	Date	Elevation of Top-of-Casing (ft msl)	Depth to Water (ft bgs)	Elevation of Water Surface (ft bgs)	Comments
MW-1	2/27/98	106.09	44.79	61.30	
	3/2/98	106.09	44.82	61.27	
	3/4/98	106.09	44.58	61.51	
	4/8/98	106.09	44.57	61.52	
	5/20/98	106.09	43.99	62.10	
MW-2	2/27/98	106.65	44.02	62.63	Truck parked on well.
	3/2/98	106.65	44.06	62.59	
	3/4/98	106.65	44.13	62.52	
	4/8/98	106.65	NR	--	
	5/20/98	106.65	43.51	63.14	
MW-3	2/27/98	105.87	44.55	61.32	
	3/2/98	105.87	44.56	61.31	
	3/4/98	105.87	44.40	61.47	
	4/8/98	105.87	44.39	61.48	
	5/20/98	105.87	43.80	62.07	
DIAL MW-4	5/20/98	102.95 (Note 2)	41.36	61.59	See Note 3.
DIAL MW-5	5/20/98	106.36 (Note 2)	44.88	61.48	See Note 3.

**Abbreviations:**

ft msl = feet above mean sea level  
 ft bgs = feet beneath ground surface

**Notes:**

- Monitoring well locations and top-of-casing elevations for wells MW-1, MW-2, and MW-3 were surveyed on 6 March 1998 by Rattray & Associates, Inc. Northing and easting locations and elevations for the top-of-lid at the well box lids for wells DIAL MW-4 and DIAL MW-5 were also surveyed on 6 March 1998.
- Top-of-casing reference point elevations shown for wells DIAL MW-4 and DIAL MW-5 are Rattray top-of-lid elevations (106.74 ft msl and 103.49 ft msl, respectively) minus the distance between top-of-lid and top-of-casing points (approx. 0.54 ft and 0.38 ft, respectively) measured in the field by EKI on 20 May 1998. The approximate top-of-casing elevations calculated are:  

$$\text{DIAL MW-4 (103.4890 ft msl - 0.54 ft = 102.95 ft msl)}$$

$$\text{DIAL MW-5 (106.7410 ft msl - 0.38 ft = 106.36 ft msl)}$$
- Top-of-casing elevations for wells DIAL MW-4 and MW-5 are indicated to be 106.39 ft msl and 109.71 ft msl, respectively, in ENSR, 6 January 1998. The top-of-casing elevations reported by ENSR differ from those surveyed by Rattray & Associates, Inc. by approximately 2.9 feet.

**TABLE 4**

**Analytical Results for Samples of Groundwater**  
**Phase II Groundwater Investigation Report**  
**5030 Firestone Boulevard, South Gate, California**

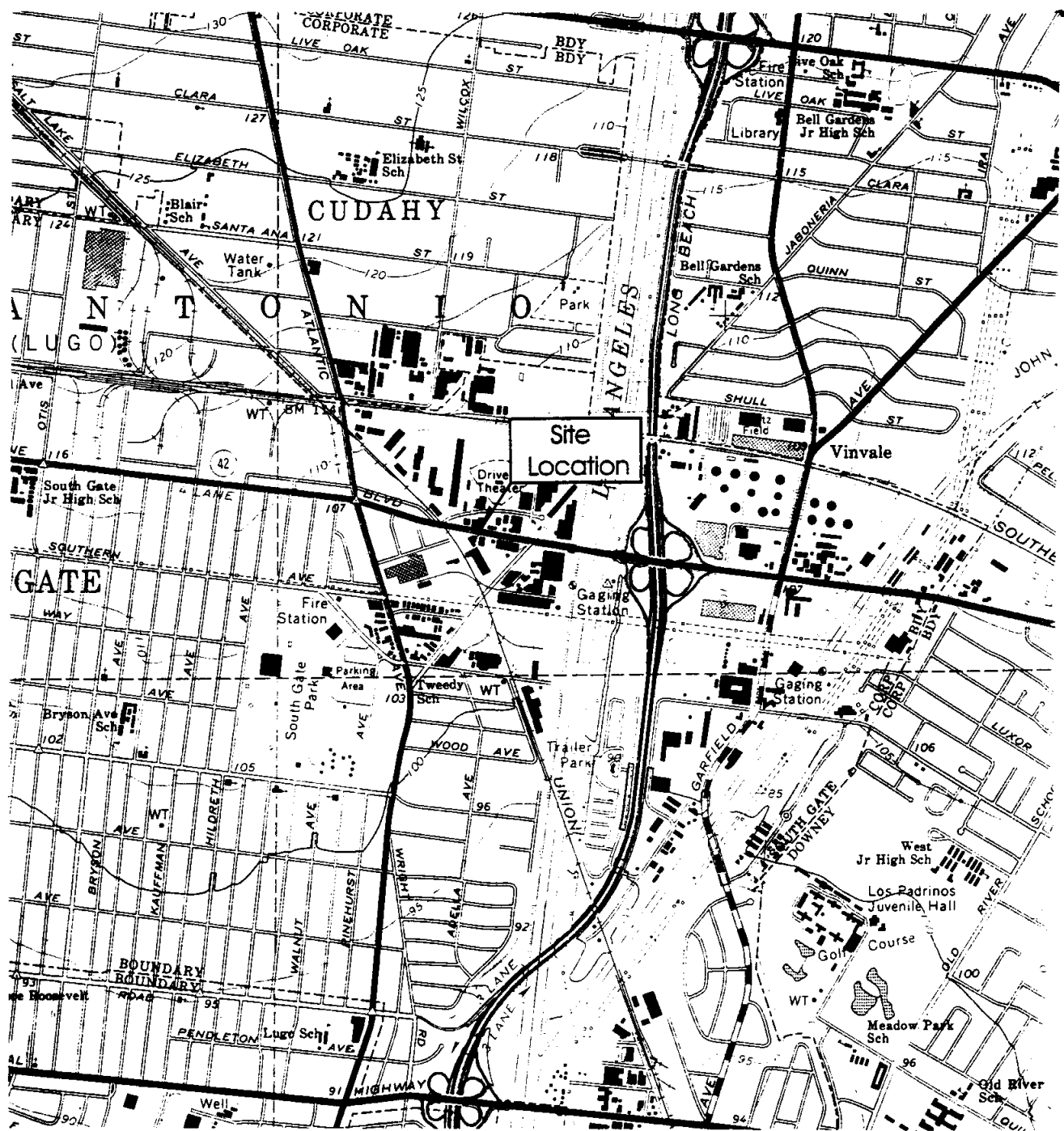
Well ID	Sample Number	Sample Date	Analyte Concentration										
			benzene (ug/L)	toluene (ug/L)	xylene (ug/L)	1,1-DCA (ug/L)	1,1-DCE (ug/L)	1,2-DCA (ug/L)	c-1,2-DCE (ug/L)	t-1,2-DCE (ug/L)	PCE (ug/L)	TCE (ug/L)	TDS (mg/L)
MW-1	MW-1-0304	3/4/98	<0.5	<0.5	<0.5	<0.5	220	<0.5	130	<0.5	140	24,000	--
	MW-1-0304DUP	3/4/98	<0.5	<0.5	<0.5	<0.5	210	<0.5	150	<0.5	160	25,000	--
	MW-1-0520	5/20/98	<125	<125	<125	<125	160	<125	130	<125	<125	24,000	1,500
MW-2	MW-2-0304	3/4/98	<0.5	<0.5	<0.5	13	34	<0.5	65	<0.5	<0.5	2,700	--
	MW-2-0520	5/20/98	<10	<10	<10	14	38	<0.5	68	<10	<10	3,000	2,500
MW-3	MW-3-0304	3/4/98	<0.5	13	<0.5	14	82	<0.5	200	<0.5	<0.5	2,800	--
	MW-3-0520	5/20/98	<10	<10	<10	13	58	<0.5	230	15	<10	2,800	1,100
DIAL MW-4	DIAL MW-4	5/20/98	<0.5	0.77	0.64	<0.5	<0.5	1.2	0.96	<0.5	<0.5	16	1,300
DIAL MW-5	DIAL MW-5	5/20/98	11	0.93	0.73	<0.5	<0.5	<0.5	8.7	1.1	<0.5	28	6,300

**Notes:**

- Abbreviations:
 

xylene = total xylene isomers	PCE = tetrachloroethene
1,1-DCA = 1,1-dichloroethane	TCE = trichloroethene
1,1-DCE = 1,1-dichloroethene	1,1,1-TCA = 1,1,1-trichloroethane
1,2-DCA = 1,2-dichloroethane	TDS = total dissolved solids
c-1,2-DCE = cis-1,2-dichloroethene	ug/L = micrograms per liter
t-1,2-DCE = trans-1,2-dichloroethene	-- indicates not analyzed
VOCs = volatile organic compounds	
- Analyses performed by Orange Coast Analytical, Inc. using EPA Method 8260 for VOCs and EPA Method 160.1 for TDS.
- Samples of groundwater were collected on 4 March 1998 and 20 May 1998.





0 2,000 4,000



(Approximate Scale in Feet)

Source: U.S.G.S 7.5 Minute Series "South Gate"  
Quadrangle, 1964, photorevised 1981.

**Erler &  
Kallnowski, Inc.**

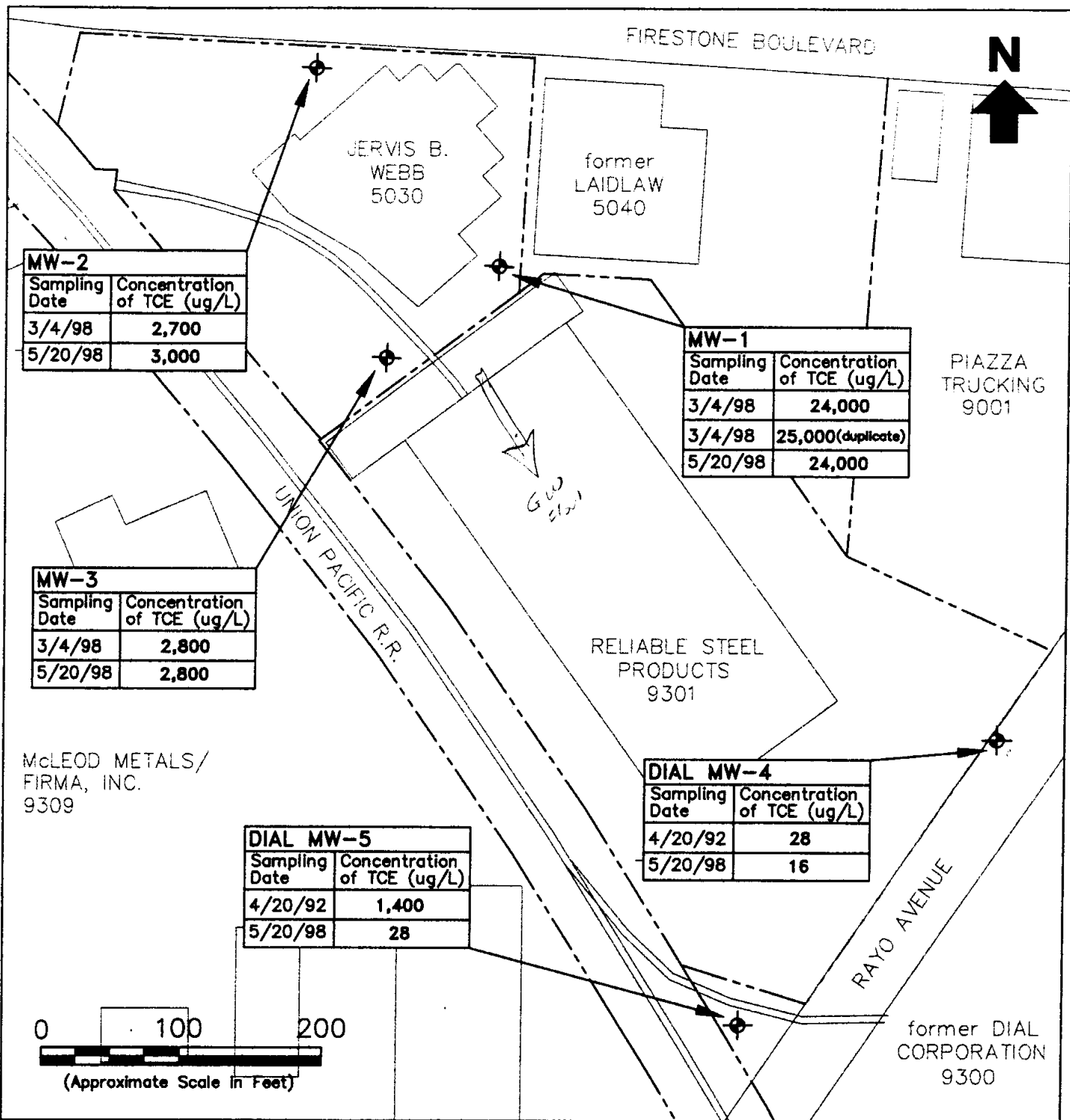
Site Location Map

Jervis B. Webb Company  
South Gate, California

June 1998  
EKI 961025.02

Figure 1

000834



## LEGEND

- Groundwater Monitoring Well
- Property Line/Boundary

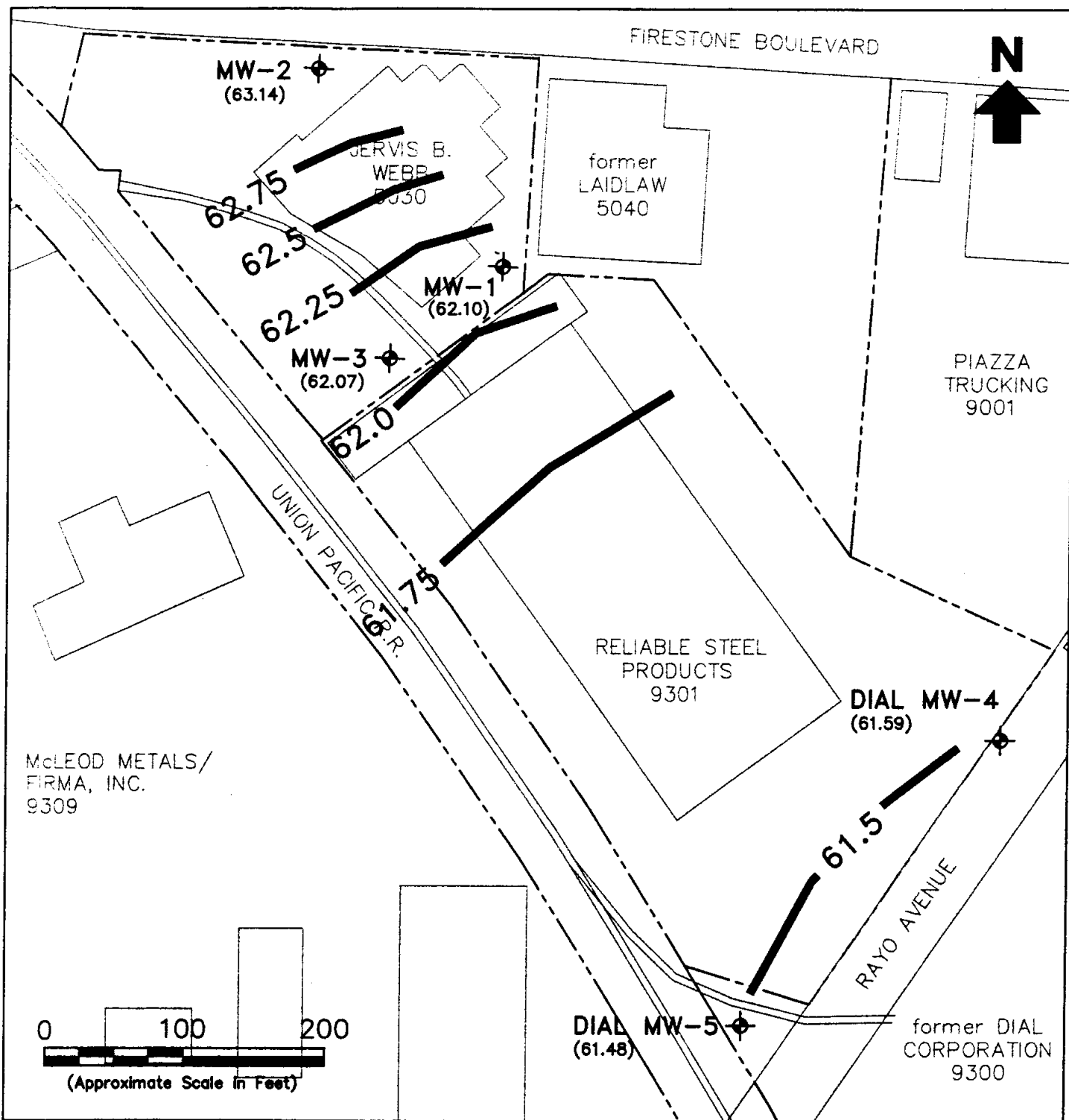
## Notes:

- All locations are approximate.
- Groundwater sampling at wells MW1 through MW3 performed by Erler & Kalinowski on 4 March and 20 May 1998. Groundwater sampling at Dial Corporation wells MW-4 and MW-5 performed by Emcon on 20 April 1992 and Erler & Kalinowski on 20 May 1998.
- TCE = trichloroethene ug/L = micrograms per liter




**Erler & Kalinowski, Inc.**

Concentrations of Trichloroethene  
in Groundwater Samples

Jervis B. Webb Company  
South Gate, California  
June 1998  
EKI 961025.02  
**Figure 2**



## LEGEND

-  Contour Representing the Elevation of the Groundwater Table in Feet Above Mean Sea Level
-  Groundwater Monitoring Well
-  Property Line/Boundary

## Notes:

1. All locations are approximate.

**Erler &  
Kallnowski, Inc.**

**Elevation of the Groundwater Table  
on 20 May 1998**

Jervis B. Webb Company  
South Gate, California  
June 1998  
EKI 961025.02  
**Figure 3**



## **Appendix A**

### **Boring Logs**

# Boring & Well Construction Log

**Erler &  
Kalinowski, Inc.**

## BORING LOCATION:

5030 Firestone Blvd., Southgate, CA

## CONTRACTOR:

West Hazmat

## DRILLING METHOD:

CME 75 Hollow Stem Auger

## CONDUCTOR CASING:

Type:

From: 0.00' To: 0.00'  
Dia: 0.00in

## BLANK CASING:

Type: Schd40 PVC

From: 0.3' To: 40.00'  
Dia: 4.00in

## SCREENS:

Type: Slotted

From: 40.00' To: 70.00'  
Size: 0.010in Dia: 4.00in

## ANNULAR FILL:

Type: Bentonite Grout From: 1.00' To: 33.50'

Type: Bentonite Pellets From: 33.50' To: 38.00'

Type: Sand Filter From: 38.00' To: 73.00'

Boring/Well Name: MW-01

Project Name: Webb- Monitoring Wells

Project Number: 961025.02

GS ELEVATION: 0.00'

TOTAL DEPTH: 73.00'

BORING DIA: 10.25in

DATUM:

DATE STARTED: 02/24/98

DATE COMPLETED: 02/24/98

LOGGED BY:

Rob C. Hesse

REVIEWED BY:

Beth Lamb, CEG

REMARKS:

2-inch x 1.5-ft California Modified Split Spoon Sampler

SAMPLES						DEPTH (feet)	MATERIAL DESCRIPTION	USCS CODE	LITHOLOGY	WELL DESCRIPTION MP. EL. 0.00
TIME COLLECTED	TYPE / INTERVAL	SAMPLE NUMBER	RECOVERY	BLOW COUNT	VAPOR READING (OVM)					
12:55		MW1-5.5	4	5	5	1	Asphalt to 4 inches. SILTY SAND, dark grayish brown (10YR 4/2), (10, 25, 65, 0), fine to coarse grained sand, micaceous, loose, moist.	SM		
						2				
						3				
						4				
						5				
						6				
						7				
						8				
						9				
13:00		MW1-10.5	7	8	11	10	SANDY SILT, dark grayish brown (10YR 4/2), (15, 55, 35, 0), fine grained sand, micaceous, non-plastic, firm, moist.	ML		
						11				

# Boring & Well Construction Log

**Erler &  
Kalinowski, Inc.**

Boring/Well Name: MW-01  
Project Name: Webb - Monitoring Wells  
Project Number: 961025.02

TIME COLLECTED	TYPE / INTERVAL	SAMPLE NUMBER	RECOVERY BLOW COUNT	VAPOR READING (OVM)	DEPTH (feet)	MATERIAL DESCRIPTION	USCS CODE	LITHOLOGY	WELL DESCRIPTION
13:05		MW1-15.5	7 11 12		13 14 15 16				
13:15		MW1-20.5	8 11 12		17 18 19 20 21				
13:20		MW1-25.5	8 11 13		22 23 24 25 26 27 28	SILTY SAND, grayish brown (10YR 5/2), (10, 40, 50, 0), fine grained, micaceous, poorly graded, moist.  CLAY, gray (10YR 5/1), with dark yellowish brown (10YR 4/4) streaks, (60, 30, 10, 0), high plasticity, low toughness, soft to firm, moist.	SM CL		

# Boring & Well Construction Log

**Erler &  
Kalinowski, Inc.**

Boring/Well Name: MW-01  
Project Name: Webb- Monitoring Wells  
Project Number: 961025.02

TIME COLLECTED	TYPE / INTERVAL	SAMPLE NUMBER	RECOVERY	BLOW COUNT	VAPOR READING (OVM)	DEPTH (feet)	MATERIAL DESCRIPTION	USCS CODE	LITHOLOGY	WELL DESCRIPTION
13:25		MW1-30.5	11 13 12			30	SANDY SILT, dark grayish brown (10YR 4/2), (20, 50, 30, 0), fine grained sand, micaceous, non-plastic, firm, moist.	ML		
						31				
						32				
						33				
						34				
13:30		MW1-35.5	9 11 14			35	SILTY SAND, as above.	SM		
						36	SAND, light gray (10YR 7/1), (0, 20, 80, 0), fine to medium grained, quartzite, medium dense, moist.	SW		
						37				
						38				
						39				
13:35		MW1-40.5	8 11 14			40	SANDY SILT, dark greenish gray (10YR 4/1), (20, 55, 25, 0), fine grained sand, micaceous, non-plastic, firm, moist to wet.	ML		
						41				
						42				
						43				
						44				
13:50		MW1-45.5	9 12			45	SILTY SAND, dark greenish gray (10YR 4/1), (15, 20, 55, 0), fine grained, micaceous, medium dense, wet.	SM		



# Boring & Well Construction Log

**Erler &  
Kalinowski, Inc.**

Boring/Well Name: MW-01  
Project Name: Webb- Monitoring Wells  
Project Number: 961025.02

TIME COLLECTED	TYPE / INTERVAL	SAMPLE NUMBER	RECOVERY	BLOW COUNT	VAPOR READING (OVN)	DEPTH (feet)	MATERIAL DESCRIPTION	USCS CODE	LITHOLOGY	WELL DESCRIPTION
14:05		MW1-50.5		15		47	SANDY SILT, dark greenish gray (10YR 4/1), (15, 45, 40, 0) fine grained sand, micaceous, non-plastic, firm, saturated.	ML		
						48				
						49				
				10		50				
				11		51				
14:20		MW1-55.5		14		52				
						53				
						54				
				9		55				
				14		56				
				16		57				
						58				
						59				
				9		60		SM		
				13		61				
				16		62				

# Boring & Well Construction Log

**Erler &  
Kalinowski, Inc.**

Boring/Well Name: MW-01  
Project Name: Webb- Monitoring Wells  
Project Number: 961025.02

TIME COLLECTED	TYPE / INTERVAL	SAMPLE NUMBER	RECOVERY BLOW COUNT	VAPOR READING (OVN)	DEPTH (feet)	MATERIAL DESCRIPTION	USCS CODE	LITHOLOGY	WELL DESCRIPTION
			9		64				
			13		65	SAND, greenish gray (10YR 5/1) with black (N/ ), (0, 10, 90, 0), quartzitic, medium dense, saturated.	SW		
			17		66				
					67				
					68				
					69				
					70				
					71				
					72				
					73	Total Depth = 73 feet.			
					74				
					75				
					76				
					77				
					78				
					79				

# Boring & Well Construction Log

**Erler &  
Kalinowski, Inc.**

<b>BORING LOCATION:</b> 5030 Firestone Blvd., Southgate, CA	
<b>CONTRACTOR:</b> West Hazmat	
<b>DRELLING METHOD:</b> Hollow Stem Auger	
<b>CONDUCTOR CASING:</b> Type: NAO-Not Applicable;	From: 0.00' To: 0.00' Dia: 0.00in
<b>BLANK CASING:</b> Type: Schd40 PVC	From: 0.3' To: 40.00' Dia: 10.25in
<b>SCREENS:</b> Type: Slotted	From: 40.00' To: 70.00' Size: 0.010in Dia: 4.00in
<b>ANNULAR FILL:</b>	
Type: Bentonite Grout	From: 1.00' To: 32.00'
Type: Bentonite Pellets	From: 32.00' To: 38.00'
Type: Sand Filter	From: 38.00' To: 73.00'

<b>Boring/Well Name:</b> MW-02	
<b>Project Name:</b> Webb- Monitoring Wells	
<b>Project Number:</b> 961025.02	
<b>GS ELEVATION:</b> 0.00'	<b>TOTAL DEPTH:</b> 73.00'
<b>BORSHOLE DIA:</b> 10.25in	<b>DATUM:</b> Mean Sea Level
<b>DATE STARTED:</b> 02/25/98	<b>DATE COMPLETED:</b> 02/25/98
<b>LOGGED BY:</b> Rob C.Hesse	
<b>REVIEWED BY:</b> Beth Lamb, CEG	
<b>REMARKS:</b> Sand emplaced into borehole from 73 feet to about 38 feet. Well removed due to fouling of filter pack by mud during construction. Remainder of borehole sealed with bentonite grout. New well installed 10 feet northwest of original boring.	

SAMPLES						DEPTH (feet)	MATERIAL DESCRIPTION	USCS CODE	LITHOLOGY	WELL DESCRIPTION MP. EL. 0.00
TIME COLLECTED	TYPE / INTERVAL	SAMPLE NUMBER	RECOVERY	BLOW COUNT	VAPOR READING (OVM)					
8:15		MW2-5	3			1	Asphalt to 4 inches.	SM		
			4			2				
			7			3				
						4				
						5				
						6				
						7				
						8				
						9				
8:25		MW2-10.5	4			10	SANDY SILT, dark grayish brown (10YR 4/2), (15, 55, 35, 0), fine grained sand, micaceous, moist.	ML		
			5			11				
			7							

# Boring & Well Construction Log

**Erler &  
Kalinowski, Inc.**

Boring/Well Name: MW-02  
Project Name: Webb- Monitoring Wells  
Project Number: 961025.02

TIME COLLECTED	TYPE / INTERVAL	SAMPLE NUMBER	RECOVERY	BLOW COUNT	VAPOR READING (OVM)	DEPTH (feet)	MATERIAL DESCRIPTION	USCS CODE	LITHOLOGY	WELL DESCRIPTION
8:30		MW2-15.5	5 5 8			13 14 15 16 17 18 19				
8:35		MW2-20.5	16 16 17			20 21 22 23 24	CLAY, gray (10YR 5/1), with dark yellowish brown (10YR 4/4) streaks, (60, 30, 10, 0), high plasticity, low toughness, soft to firm, moist.	CL		
8:40		MW2-25.5	10 11 13			25 26 27 28	SILTY SAND, dark grayish brown (10YR 4/2), (10, 40, 50, 0) fine grained, micaceous, medium dense, moist.	SM		

# Boring & Well Construction Log

**Erler &  
Kalinowski, Inc.**

Boring/Well Name: MW-02  
Project Name: Webb- Monitoring Wells  
Project Number: 961025.02

TIME COLLECTED	TYPE / INTERVAL	SAMPLE NUMBER	RECOVERY	BLOW COUNT	VAPOR READING (OVM)	DEPTH (feet)	MATERIAL DESCRIPTION	USCS CODE	LITHOLOGY	WELL DESCRIPTION
8:45		MW2-30.5	9	11		30	SANDY SILT, dark grayish brown (10YR 4/2), (20, 50, 30, 0), fine grained sand, micaceous, non-plastic, firm, moist.	ML		
			16			31				
						32				
						33				
						34				
8:50		MW2-35.5	8	13		35				
			14			36				
						37	SAND, light gray (10YR 7/1), (0, 20, 80, 0), fine to medium grained, quartzitic, quartzitic, moist.	SW		
						38				
						39				
8:55		MW2-41	9	14		40	SILTY SAND, dark greenish gray (10YR 4/1), (15, 20, 55, 0), fine grained, micaceous, moist to wet.	SM		
			16			41				
						42				
						43				
						44				
9:00		MW2-45.5	10	12		45	SAND, dark greenish gray (10YR 4/1), (5, 10, 85, 0) fine grained, micaceous, poorly graded, wet.	SP		

# Boring & Well Construction Log

**Erler &  
Kalinowski, Inc.**

Boring/Well Name: MW-02  
Project Name: Webb- Monitoring Wells  
Project Number: 961025.02

TIME COLLECTED	TYPE / INTERVAL	SAMPLE NUMBER	RECOVERY BLOW COUNT	VAPOR READING (OVM)	DEPTH (feet)	MATERIAL DESCRIPTION	USCS CODE	LITHOLOGY	WELL DESCRIPTION
9:05		MW2-50.5	15		47	SANDY SILT, dark greenish gray (10Y 3/1), (15, 45, 40, 0), fine grained sand, micaceous, non-plastic, firm, saturated.	ML		
			12		48				
			14		49				
			18		50				
					51				
9:10		MW2-55.5	13		52	SILTY SAND, dark greenish gray (10YR 4/1) and dark grayish brown (10YR 4/2), (15, 35, 50, 0), fine grained, micaceous, saturated.	SM		
			16		53				
			17		54				
					55				
					56				
9:15		MW2-60.5	13		57				
			17		58				
			19		59				
					60				
					61				
					62				

# Boring & Well Construction Log

**Erler &  
Kalinowski, Inc.**

Boring/Well Name: MW-02  
Project Name: Webb- Monitoring Wells  
Project Number: 961025.02

TIME COLLECTED	TYPE INTERVAL	SAMPLE NUMBER	RECOVERY BLOW COUNT	VAPOR READING (OVM)	DEPTH (feet)	MATERIAL DESCRIPTION	USCS CODE	LITHOLOGY	WELL DESCRIPTION
					64				
					65	SAND, greenish gray (10YR 5/1) and grayish brown (10YR 5/2 ), (0, 10, 90, 0), fine to medium grained, quartzitic, saturated.	SW		
					66				
					67				
					68	color change to greenish gray (10Y 5/1) with black (N1).			
					69				
					70				
					71				
					72				
					73				
					74	Total Depth = 73 feet.			
					75				
					76				
					77				
					78				
					79				

# Boring & Well Construction Log

**Erler & Kalinowski, Inc.**

<b>BORING LOCATION:</b> 5030 Firestone Blvd., Southgate, CA	
<b>CONTRACTOR:</b> West Hazmat	
<b>DRILLING METHOD:</b> CME 75 Hollow Stem Auger	
<b>CONDUCTOR CASING:</b> Type: NAO-Not Applicable;	From: 0.00' To: 0.00' Dia: 0.00in
<b>BLANK CASING:</b> Type: Schd40 PVC	From: 0.3' To: 40.00' Dia: 4.00in
<b>SCREENS:</b> Type: Slotted	From: 40.00' To: 70.00' Size: 0.010in Dia: 4.00in
<b>ANNULAR FILL:</b>	
Type: Bentonite Grout	From: 1.00' To: 33.00'
Type: Bentonite Pellets	From: 33.00' To: 38.00'
Type: Sand Filter	From: 38.00' To: 73.00'

<b>Boring/Well Name:</b> MW-03	
<b>Project Name:</b> Webb- Monitoring Wells	
<b>Project Number:</b> 961025.02	
<b>GS ELEVATION:</b> 0.00'	<b>TOTAL DEPTH:</b> 73.00'
<b>BORERHOLE DIA:</b> 10.25in	<b>DATUM:</b>
<b>DATE STARTED:</b> 02/25/98	<b>DATE COMPLETED:</b> 02/25/98
<b>LOGGED BY:</b> Rob C. Hesse	
<b>REVIEWED BY:</b> Beth Lamb, CEG	
<b>REMARKS:</b> 2-inch x 1.5-foot California Modified Split Spoon Sampler	

SAMPLES					VAPOR READING (OVW)	DEPTH (feet)	MATERIAL DESCRIPTION	USCS CODE	LITHOLOGY	WELL DESCRIPTION MP. EL. 0.00
TIME COLLECTED	TYPE / INTERVAL	SAMPLE NUMBER	RECOVERY	BLOW COUNT						
14:30		MW3-5.5	5	5		1	Asphalt to 4 inches.	SM		
			5	5		2	SILTY SAND, dark grayish brown (10YR 4/2), (10, 25, 65, 0), fine to medium grained, micaceous, loose, moist.			
			6	6		3				
						4				
						5				
						6				
						7				
						8				
						9				
						10	SANDY SILT, dark grayish brown (10YR 4/2), (15, 55, 35, 0), fine grained sand, micaceous, non-plastic, firm, moist.	ML		
14:40		MW3-11	4	5		11				
			6	6						



# Boring & Well Construction Log

**Erler &  
Kalinowski, Inc.**







Boring/Well Name: MW-03  
Project Name: Webb- Monitoring Wells  
Project Number: 961025.02

TIME COLLECTED	TYPE / INTERVAL	SAMPLE NUMBER	RECOVERY	BLOW COUNT	VAPOR READING (ovm)	DEPTH (feet)	MATERIAL DESCRIPTION	USCS CODE	LITHOLOGY	WELL DESCRIPTION
14:45		MW3-15.5	4			13				
			5			14				
			6			15				
						16				
						17				
						18				
						19				
14:47		MW3-20.5	5			20				
			7			21				
			7			22				
						23				
						24				
14:50		MW3-25.5	7			25	SILTY SAND, grayish brown (10YR 5/2), (10, 40, 50, 0), fine grained, micaceous, poorly graded, moist.	SM		
			8			26	CLAY, gray (10YR 5/1), with dark yellowish brown (10YR 4/4) streaks, (60, 30, 10, 0), high plasticity, low toughness, soft to firm, moist.	CL		
			8			27				
						28				

# Boring & Well Construction Log

**Erler &  
Kalinowski, Inc.**

Boring/Well Name: MW-03  
Project Name: Webb- Monitoring Wells  
Project Number: 961025.02

TIME COLLECTED	TYPE / INTERVAL	SAMPLE NUMBER	RECOVERY BLOW COUNT	VAPOR READING (OVM)	DEPTH (feet)	MATERIAL DESCRIPTION	USCS CODE	LITHOLOGY	WELL DESCRIPTION
14:55		MW3-30.5	7 7 9		30 31 32 33 34	SANDY SILT, dark grayish brown (10YR 4/2), (20, 50, 30, 0), fine grained sand, micaceous, non-plastic, firm, moist.	ML		
15:00		MW3-35	5 7 7		35 36 37 38 39	SAND, light gray (10YR 7/1), (0, 20, 80, 0), fine to medium grained, quartzitic, dense, moist.	SW		
15:03		MW3-41	5 8 9		40 41 42 43 44 45	SILTY SAND, dark greenish gray (10YR 4/1), (10, 25, 65, 0), fine grained, micaceous, non-plastic, firm, moist to wet.	SM		
			5 8			SILTY SAND, as above, wet.			

# Boring & Well Construction Log

**Erler &  
Kalinowski, Inc.**

Boring/Well Name: MW-03  
Project Name: Webb- Monitoring Wells  
Project Number: 961025.02

TIME COLLECTED	TYPE / INTERVAL	SAMPLE NUMBER	RECOVERY BLOW COUNT	VAPOR READING (OVM)	DEPTH (feet)	MATERIAL DESCRIPTION	USCS CODE	LITHOLOGY	WELL DESCRIPTION
15:08		MW3-46	9		47				
					48				
					49				
			7		50	SILTY SAND, as above, saturated.			
			11		51				
			14		52				
					53				
					54				
					55				
					56				
					57				
					58				
					59				
			9		60	SAND, greenish gray (10Y 5/1) with black (N/ ), (0, 10, 90, 0) fine to medium grained, quartzitic, saturated.	SW		
			12		61				
			14		62				

# Boring & Well Construction Log

**Erler &  
Kalinowski, Inc.**

Boring/Well Name: MW-03  
Project Name: Webb- Monitoring Wells  
Project Number: 961025.02

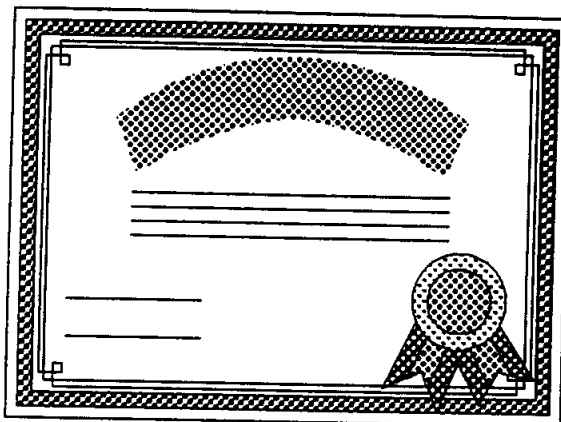
TIME COLLECTED	TYPE / INTERVAL	SAMPLE NUMBER	RECOVERY	BLOW COUNT	VAPOR READING (OVM)	DEPTH (feet)	MATERIAL DESCRIPTION	USCS CODE	LITHOLOGY	WELL DESCRIPTION
						64				
						65				
						66				
						67				
						68				
						69				
						70	SAND, greenish gray (10Y 5/1) with black (N/ ), (0, 10, 90, 0) fine to medium grained, quartzitic, saturated.	SP		
						71				
						72				
						73				
						74	Total Depth = 73 feet.			
						75				
						76				
						77				
						78				
						79				

**B**



**ORANGE COAST ANALYTICAL, INC.**

3002 Dow, Suite 532, Tustin, CA 92780 (714) 832-0064 Fax (714) 832-0067  
4620 E. Elwood, Suite 4, Phoenix, AZ 85040 (602) 736-0960 Fax (602) 736-0970



MAR 9 1993

SANTA MONICA OFFICE

ORANGE COAST ANALYTICAL THANKS YOU FOR YOUR BUSINESS

THE FOLLOWING PAGES ARE THE ANALYSIS REPORT

ON THE SAMPLES YOU REQUESTED.

IF YOU HAVE ANY QUESTIONS REGARDING THIS REPORT

PLEASE FEEL FREE TO CONTACT US.

**ORANGE COAST ANALYTICAL, INC.**

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4620 E. Elwood, Suite 4, Phoenix, AZ 85040 (602) 736-0960 Fax (602) 736-0970

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
LOS ANGELES REGION**

**LABORATORY REPORT FORM**

Laboratory Name: Orange Coast Analytical

Address: 3002 Dow Suite 532 Tustin, CA 92780

Telephone: (714) 832-0064

Laboratory Certification

(ELAP) No.: 1416

Expiration Date: 1999

Laboratory Director's Name (Print): Mark Noorani

Laboratory Director's Signature: *Mark Noorani*

Client: Erlar & Kalinowski, Inc.

Project No.: 961025.02

Project Name: Webb

Laboratory Reference: EKI 9986

Analytical Method: 8010

**Other**

Date Sampled: 02-25-98

Date Received: 02-27-98

Date Reported: 03-06-98

Sample Matrix: Soil

Extraction Method: n/a

Extraction Material: n/a

Chain of Custody Received: Yes X

Sample Condition: Chilled

-- Sample Headspace Description (%): 0

-- Sample Container Material: Brass

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 4620 E. Elwood, Suite 4, Phoenix, AZ 85040 (602) 736-0960 Fax (602) 736-0970

**8010 ANALYTICAL TEST RESULT****Reporting Unit: ug/kg**

DATE ANALYZED		03/05/98	03/05/98	03/05/98	03/05/98
DATE EXTRACTED					
DILUTION FACTOR			1	1	1
LAB SAMPLE I.D.			98020207	98020208	98020209
CLIENT SAMPLE I.D.			MW1-10.5	MW1-20.5	MW1-30.5
COMPOUND	MDL	MB			
Bromodichloromethane	5.0	<5.0	<5.0	<5.0	<5.0
Bromoform	5.0	<5.0	<5.0	<5.0	<5.0
Bromomethane	5.0	<5.0	<5.0	<5.0	<5.0
Carbon Tetrachloride	5.0	<5.0	<5.0	<5.0	<5.0
Chlorobenzene	5.0	<5.0	<5.0	<5.0	<5.0
Chlorodibromomethane	5.0	<5.0	<5.0	<5.0	<5.0
Chloroethane	10	<10	<10	<10	<10
2-Chloroethyl vinyl ether	25	<25	<25	<25	<25
Chloroform	5.0	<5.0	<5.0	<5.0	<5.0
Chloromethane	10	<10	<10	<10	<10
1, 2-Dichlorobenzene	10	<10	<10	<10	<10
1, 3-Dichlorobenzene	10	<10	<10	<10	<10
1, 4-Dichlorobenzene	10	<10	<10	<10	<10
1,1-Dichloroethane	5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichloroethane	5.0	<5.0	<5.0	<5.0	<5.0
1,1-Dichloroethene	5.0	<5.0	<5.0	<5.0	<5.0
Trans 1,2-Dichloroethene	5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichloropropane	5.0	<5.0	<5.0	<5.0	<5.0
cis-1,3-Dichloropropene	5.0	<5.0	<5.0	<5.0	<5.0
trans-1,3-Dichloropropene	20	<20	<20	<20	<20
Methylene chloride	25	<25	<25	<25	<25
1,1,2,2-Tetrachloroethane	5.0	<5.0	<5.0	<5.0	<5.0
Tetrachloroethene	5.0	<5.0	21	23	11
1,1,1-Trichloroethane	5.0	<5.0	<5.0	<5.0	<5.0
1,1,2-Trichloroethane	5.0	<5.0	<5.0	<5.0	<5.0
Trichloroethene	5.0	<5.0	18	62	60
Trichlorofluoromethane	5.0	<5.0	<5.0	<5.0	<5.0
Vinyl Chloride	5.0	<5.0	<5.0	<5.0	<5.0
SURROGATE	SPK	ACP%	MB	%RC	%RC
	CONC		%RC		
1,4-dichlorobutane	20	78-115	106	104	109

000857





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4620 E. Elwood, Suite 4, Phoenix, AZ 85040 (602) 736-0960 Fax (602) 736-0970

## 8010 ANALYTICAL TEST RESULT

Reporting Unit: ug/kg

DATE ANALYZED			03/05/98	03/05/98	03/05/98	03/05/98
DATE EXTRACTED						
DILUTION FACTOR				1	1	1
LAB SAMPLE I.D.				98020210	98020211	98020212
CLIENT SAMPLE I.D.				MW2-10.5	MW2-20.5	MW2-30.5
COMPOUND		MDL	MB			
Bromodichloromethane		5.0	<5.0	<5.0	<5.0	<5.0
Bromoform		5.0	<5.0	<5.0	<5.0	<5.0
Bromomethane		5.0	<5.0	<5.0	<5.0	<5.0
Carbon Tetrachloride		5.0	<5.0	<5.0	<5.0	<5.0
Chlorobenzene		5.0	<5.0	<5.0	<5.0	<5.0
Chlorodibromomethane		5.0	<5.0	<5.0	<5.0	<5.0
Chloroethane		10	<10	<10	<10	<10
2-Chloroethyl vinyl ether		25	<25	<25	<25	<25
Chloroform		5.0	<5.0	<5.0	<5.0	<5.0
Chloromethane		10	<10	<10	<10	<10
1, 2-Dichlorobenzene		10	<10	<10	<10	<10
1, 3-Dichlorobenzene		10	<10	<10	<10	<10
1, 4-Dichlorobenzene		10	<10	<10	<10	<10
1,1-Dichloroethane		5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichloroethane		5.0	<5.0	<5.0	<5.0	<5.0
1,1-Dichloroethene		5.0	<5.0	<5.0	<5.0	<5.0
Trans 1,2-Dichloroethene		5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichloropropane		5.0	<5.0	<5.0	<5.0	<5.0
cis-1,3-Dichloropropene		5.0	<5.0	<5.0	<5.0	<5.0
trans-1,3-Dichloropropene		20	<20	<20	<20	<20
Methylene chloride		25	<25	<25	<25	<25
1,1,2,2-Tetrachloroethane		5.0	<5.0	<5.0	<5.0	<5.0
Tetrachloroethene		5.0	<5.0	<5.0	<5.0	<5.0
1,1,1-Trichloroethane		5.0	<5.0	<5.0	<5.0	<5.0
1,1,2-Trichloroethane		5.0	<5.0	<5.0	<5.0	<5.0
Trichloroethene		5.0	<5.0	<5.0	<5.0	<5.0
Trichlorofluoromethane		5.0	<5.0	<5.0	<5.0	<5.0
Vinyl Chloride		5.0	<5.0	<5.0	<5.0	<5.0
SURROGATE	SPK	ACP%	MB	%RC	%RC	%RC
	CONC		%RC			
1,4-dichlorobutane	20	78-115	106	113	115	108

**ORANGE COAST ANALYTICAL, INC.**

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**8010 ANALYTICAL TEST RESULT****Reporting Unit: ug/kg**

DATE ANALYZED		03/05/98	03/05/98	03/05/98	03/05/98
DATE EXTRACTED					
DILUTION FACTOR			1	1	1
LAB SAMPLE I.D.			98020213	98020214	98020215
CLIENT SAMPLE I.D.			MW3-11	MW3-20.5	MW3-30.5
COMPOUND		MDL	MB		
Bromodichloromethane		5.0	<5.0	<5.0	<5.0
Bromoform		5.0	<5.0	<5.0	<5.0
Bromomethane		5.0	<5.0	<5.0	<5.0
Carbon Tetrachloride		5.0	<5.0	<5.0	<5.0
Chlorobenzene		5.0	<5.0	<5.0	<5.0
Chlorodibromomethane		5.0	<5.0	<5.0	<5.0
Chloroethane		10	<10	<10	<10
2-Chloroethyl vinyl ether		25	<25	<25	<25
Chloroform		5.0	<5.0	<5.0	<5.0
Chloromethane		10	<10	<10	<10
1, 2-Dichlorobenzene		10	<10	<10	<10
1, 3-Dichlorobenzene		10	<10	<10	<10
1, 4-Dichlorobenzene		10	<10	<10	<10
1,1-Dichloroethane		5.0	<5.0	<5.0	<5.0
1,2-Dichloroethane		5.0	<5.0	<5.0	<5.0
1,1-Dichloroethene		5.0	<5.0	<5.0	<5.0
Trans 1,2-Dichloroethene		5.0	<5.0	<5.0	<5.0
1,2-Dichloropropane		5.0	<5.0	<5.0	<5.0
cis-1,3-Dichloropropene		5.0	<5.0	<5.0	<5.0
trans-1,3-Dichloropropene		20	<20	<20	<20
Methylene chloride		25	<25	<25	<25
1,1,2,2-Tetrachloroethane		5.0	<5.0	<5.0	<5.0
Tetrachloroethene		5.0	<5.0	<5.0	<5.0
1,1,1-Trichloroethane		5.0	<5.0	<5.0	<5.0
1,1,2-Trichloroethane		5.0	<5.0	<5.0	<5.0
Trichloroethene		5.0	<5.0	<5.0	<5.0
Trichlorofluoromethane		5.0	<5.0	<5.0	<5.0
Vinyl Chloride		5.0	<5.0	<5.0	<5.0
SURROGATE		SPK	MB	%RC	%RC
		CONC	%RC		
1,4-dichlorobutane		20	78-115	106	107
				105	109

000859

**ORANGE COAST ANALYTICAL, INC.**

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4620 E. Elwood, Suite 4, Phoenix, AZ 85040 (602) 736-0960 Fax (602) 736-0970

**8010 QA / QC REPORT**Reporting Unit :  $\mu\text{g/kg}$ **1. Matrix Spike (MS) / Matrix Spike Duplicate (MSD)**

Date Performed : 03/05/98

Batch # :

LAB Sample I. D. : 98020210

Analyte	R1	SP CONC	MS	MSD	%MS	%MSD	RPD	ACP %MS	ACP RPD
1,1-Dichloroethane	0.0	20	18	19	90	95	5	59-115	10
Trichloroethene	0.0	20	19	19	95	95	0	79-139	18
Tertachloroethene	0.0	20	17	16	85	80	6	50-141	11

R1 = Result of Laboratory Sample I.D.

SPK CONC = Spiking Concentration (  $< 5 \times \text{PQL}$  ) ; PQL = Practical Quantitation Limit.

MS = Matrix Spike Result

MSD = Matrix Spike Duplicate Result

%MS = Percent Recovery of MS:  $\{(\text{MS}-\text{R1})/\text{SP}\} \times 100$ .%MSD = Percent Recovery of MSD:  $\{(\text{MSD}-\text{R1})/\text{SP}\} \times 100$ .RPD = Relative Percent Difference:  $\{(\text{MS} - \text{MSD})/(\text{MS} + \text{MSD})\} \times 100 \times 2$ 

ACP%MS(MSD) = Acceptable Range of Percent.

ACP RPD = Acceptable Relative Percent Difference

**2. Laboratory Quality Control check sample**

Date Performed : 03/05/98

Batch # :

LAB Sample I. D. : OCA 4777

ANALYTE	SPK CONC	RESULTS	%RECOVERY	ACP %
1,1-Dichloroethane	20	21	105	80- 120
1,1,1-Trichloroethane	20	19	95	80- 120
Bromoform	20	21	105	80- 120

ANALYST: Mitra SamieiDATE: 03/05/98

000860

Erler & Kalinowski, Inc.

CHAIN OF CUSTODY / SAMPLE ANALYSIS REQUEST

Project Number: 961025.02

Project Name: WEPB

Source of Samples:

Location: 5030 FIRESTONE BLVD, SOUTH GATE

Analytical Laboratory: ORANGE COAST

Date Sampled: 2/24/98

Sampled By: ROB HESSE

Report Results To: STEVE MILLER

Phone Number: (310) 314-8855

Lab Sample I D	Field Sample I D	Sample Type	Number and Type of Containers	Time Collected	Analyses Requested (EPA Method Number)	Results Required By (Date/Time)
	MW1-5.5	SOIL	1 x BRASS	12:55	HOLD	3/4/98
	MW1-10.5			13:00	- 8010	
	MW1-15.5			13:05	HOLD	
	MW1-20.5			13:15	- 8010	
	MW1-25.5			13:20	HOLD	
	MW1-30.5			13:25	- 8010	
	MW1-35.5			13:30	HOLD	
	MW1-40.5			13:35	HOLD	
	MW1-45.5			13:50	HOLD	
	MW1-50.5			14:05	HOLD	

Special Instructions:

Relinquished By:

Name / Signature / Affiliation

ROB HESSE / *[Signature]*

/EKI

Date

2/26/98

Time

12:30

Received By:

Name / Signature / Affiliation

Mehran / Hashemi, OCA.

02-27-98

10:10 A.M.

Erler &amp; Kallinowski, Inc.

## CHAIN OF CUSTODY / SAMPLE ANALYSIS REQUEST

Project Number: 961025.02

Project Name: WEBB

Source of Samples:

Location: 5030 FIRESTONE BLVD, SOUTH GATE

Analytical Laboratory: ORANGE COAST

Date Sampled: 2/26/98

Sampled By: ROB HESSE

Report Results To: STEVE MILLER

Phone Number: (310) 314-8855

Lab Sample I D

Field Sample I D

Sample Type

Number and Type of Containers

Time Collected

Analyses Requested (EPA Method Number)

Results Required By (Date/Time)

2017, SOUTH GATE

Phone Number: (310) 314-8855

	MW1 - 55.5	SOIL	1 x BRASS	14:20	HOLD	3/4/78
	MW2 - 5			8:15	HOLD	
	MW2 - 10.5			8:25	- 8010	
	MW2 - 15.5			8:30	HOLD	
	MW2 - 20.5			8:35	- 8010	
	MW2 - 25.5			8:40	HOLD	
	MW2 - 30.5			8:45	- 8010	
	MW2 - 35.5			8:50	HOLD	
	MW2 - 41			8:55	HOLD	
	MW2 - 45.5	by	by	9:00	HOLD	
Special Instructions:						

Relinquished By:

Name / Signature / Affiliation

ROB HESSE

[Signature] / EKI

Date

2/26/98

Time

12:30

Received By:

Name / Signature / Affiliation

Mehran Hashemi

OCA

02-27-98

10:10 A.M.

CHAIN OF CUSTODY / SAMPLE ANALYSIS REQUEST

Analytical Laboratory: ORANGE COAST

Date Sampled: 2 / 21 / 98

Sampled By: ROB HESSE

Report Results To: STEVE MILLER

Phone Number: (310) 314-8855

Special Instructions:

Name / Signature / Affiliation

fillation  
Robertson (EK)

Time

2/26/98

12:30

Name / Signature / Affiliation

02-27-98

10:10 A.M.

Erler & Kallnowski, Inc.

CHAIN OF CUSTODY / SAMPLE ANALYSIS REQUEST

Project Number: 961025.02

Analytical Laboratory: ORANGE COAST

Project Name: WEBB

Date Sampled: 2/25/98

Source of Samples:

Sampled By: ROB HESSE

Location: 5030 FIRESTONE BLVD. SOUTH GATE

Report Results To: STEVE MILLER

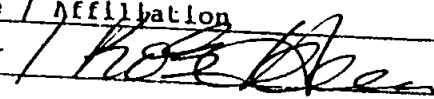
Phone Number: (310) 314-8855

Lab Sample I D	Field Sample I D	Sample Type	Number and Type of Containers	Time Collected	Analyses Requested (EPA Method Number)	Results Required By (Date/Time)
	MW3-5.5	801L	1 x BRASS	14:30	HOLD	3/4/98
	MW3-11			14:40	-8010	
	MW3-15.5			14:45	HOLD	
	MW3-20.5			14:47	-8010	
	MW3-25.5			14:50	HOLD	
	MW3-30.5			14:55	-8010	
	MW3-35			15:00	HOLD	
	MW3-41			15:03	HOLD	
	MW3-46	g	g	15:08	HOLD	g

Special Instructions:

Relinquished By:

Name / Signature / Affiliation

ROB HESSE /  / EKI

Date

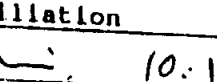
Time

2/26/98

12:30

Received By:

Name / Signature / Affiliation

Mehram Hashemi /  / 02-27-98 10:10 A.M.

**C**



**Appendix C**

**Groundwater Purge and Water Quality Monitoring Forms  
for Well Development and Groundwater Sampling**

PROJECT NAME: WEBBDATE: 3/2/98PROJECT NUMBER: 961025.02WELL NUMBER: MW1PERSONNEL: RCH

## WELL VOLUME CALCULATION:

Depth of Well (ft.)	Depth to Water (ft.)	Water Column (ft.)	Multiplier (below)	Casing Vol (gallons)
<u>~70'</u>	<u>44.82</u>	<u>= 25.14</u>	<u>* 0.64</u>	<u>= 16.1</u>

Mult. for casing diam. = 2-in.=0.16; 4-in.=0.64; 5-in.=1.02; 6-in.=1.44 gals/ft.

No. of bailers prior to start of purge: 0PURGE METHOD: 4" x 10' STAINLESS BAILER /PURGE DEPTH: 2' SUBMERSIBLE PUMP  
50'START TIME: 8:25 END TIME: 9:23

TOTAL GALLONS PURGED:

## INSTRUMENT CALIBRATION

Instrument	Field measure	Standard measure
Conductivity	<u>0.97</u>	<u>1.00</u>
pH	<u>4.06</u>	<u>4.01</u>
pH	<u>7.01</u>	<u>7.00</u>
Turbidity		
Temperature	<u>61.9</u>	
Depth Probe		

SAMPLES: Field I.D.

Time Collected

Containers &amp; Preservation

SCREENED 40' to 70' BGS

COMMENTS: WELL DEVELOPMENT -SURGE BLOCK 3' STROKEBAIL 50 GALLONS WITH 4" x 10' BAILER8:50 SET 2" SUBMERSIBLE PUMP9:23 END PURGE

Time	8:42	8:50	8:58	9:06'	9:11	9:16	9:21	
Volume Purged (gallons)	25	50	60	80	90	100	110	
Temperature (degrees F or C)	65.6	64.8	66.5	68.4	68.0	68.6	68.6	
pH	6.86	6.92	7.02	7.12	7.15	7.12	7.16	
Specific Conductivity (us/cm)	3.44	3.51	3.65	4.66	4.83	4.96	5.02	
Turbidity/Color (NTU)	>100	>100	>100	65.1	30.5	10.9	4.6	
Odor	YES	YES	YES	YES	YES	YES	YES	
Depth to Water during purge (feet)				48.22'	48.39'	48.42'	-	
Number of Casing Volumes removed								
Purge Rate (gallons/minute)								

25.14  
0.64

GWPURGE.XLS

10056  
150840 -  
160896

000867

PROJECT NAME: WEBB

DATE: 3/2/98

PROJECT NUMBER: 961025.02 WELL NUMBER: MW2 PERSONNEL: RCH

## WELL VOLUME CALCULATION:

Depth of Well (ft.)	Depth to Water (ft.)	Water Column (ft.)	Multiplier (below)	Casing Volume (gallons)
~70'	44.06'	= 25.94'	* 0.64	= ~16.5

Mult. for casing diam. = 2-in.=0.16; 4-in.=0.64; 5-in.=1.02; 6-in.=1.44 gals/ft.

No. of bailers prior to start of purge: 0

PURGE METHOD: 4" x 10' STAINLESS BAILEY / 2" SUBMERSIBLE PUMP

PURGE DEPTH: ~50'

START TIME: 9:50

END TIME: \_\_\_\_\_

TOTAL GALLONS PURGED:

SAMPLES: Field I.D.

Time Collected

Containers &amp; Preservation

## INSTRUMENT CALIBRATION

Instrument	Field measure	Standard measure
------------	---------------	------------------

Conductivity

pH

pH

Turbidity

Temperature

Depth Probe

SEE LOG FOR  
WELL MW-1

## COMMENTS:

SURGE BLOCK 3' STROKE  
BAIL 55 GALLONS WITH 4" x 10' BAILEY  
10:03 SET 2" SUBMERSIBLE PUMP

Time	9:53	9:58	10:03	10:08	10:18	10:23	10:28	10:33
Volume Purged (gallons)	10	35	40	45	55	60	65	70
Temperature (degrees F or C)	66.8	68.2	68.8	70.5	70.5	71.7	73.9	72.5
pH	7.26	7.26	7.28	7.36	7.24	7.22	7.35	7.38
Specific Conductivity (us/cm)	2.64	2.60	2.50	2.96	3.01	3.08	3.01	3.02
Turbidity/Color (NTU)	>100	>100	>100	>100	>100	82.0	20.5	10.6
Odor	YES	YES	YES	YES	YES	YES	YES	YES
Depth to Water during purge (feet)				58.45'		58.52'	58.55'	58.60'
Number of Casing Volumes removed								
Purge Rate (gallons/minute)								

PROJECT NAME: **WEBB**DATE: **3/2/18**PROJECT NUMBER: **961025.02** WELL NUMBER: **MW2** PERSONNEL: **RCH**

## WELL VOLUME CALCULATION:

Depth of Well (ft.)	Depth to Water (ft.)	Water Column (ft.)	Multiplier (below)	Casing Vol (gallons)
-		=	*	=

Mult. for casing diam. = 2-in.=0.16; 4-in.=0.64; 5-in.=1.02; 6-in.=1.44 gals/ft.

No. of bailers prior to start of purge: \_\_\_\_\_

PURGE METHOD: \_\_\_\_\_

PURGE DEPTH: \_\_\_\_\_

START TIME: \_\_\_\_\_ END TIME: **10:44**TOTAL GALLONS PURGED: **80**SAMPLES: Field I.D.Time CollectedContainers & Preservation

## INSTRUMENT CALIBRATION

Instrument	Field measure	Standard measure
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Conductivity

pH

pH

Turbidity

Temperature

Depth Probe

**SEE LOG FOR****WELL MW-1**COMMENTS: **SEE PAGE 1 OF 1 FOR WELL MW-2****FROM PREVIOUS**

Time	<b>10:38</b>	<b>10:43</b>						
Volume Purged (gallons)	<b>75</b>	<b>80</b>						
Temperature (degrees F or C)	<b>72.1</b>	<b>71.2</b>						
pH	<b>7.54</b>	<b>7.48</b>						
Specific Conductivity (us/cm)	<b>3.04</b>	<b>3.04</b>						
Turbidity/Color (NTU)	<b>4.0</b>	<b>3.8</b>						
Odor	<b>YES</b>	<b>YES</b>						
Depth to Water during purge (feet)	<b>58.65</b>	<b>-</b>						
Number of Casing Volumes removed								
Purge Rate (gallons/minute)								

PROJECT NAME: WEBBDATE: 3/2/78PROJECT NUMBER: 961025.02 WELL NUMBER: MW3 PERSONNEL: RCH

## WELL VOLUME CALCULATION:

Depth of Well (ft.)	Depth to Water (ft.)	Water Column (ft.)	Multiplier (below)	Casing Volume (gallons)
<u>~70'</u>	<u>44.56'</u>	<u>= 25.44'</u>	<u>* 0.64</u>	<u>= ~16.2</u>

Mult. for casing diam. = 2-in.=0.16; 4-in.=0.64; 5-in.=1.02; 6-in.=1.44 gals/ft.

No. of bailers prior to start of purge: 0PURGE METHOD: 4" x 10' STAINLESS BAILER /2" SUBMERSIBLE PUMPPURGE DEPTH: 50'START TIME: 11:06 END TIME: 11:58TOTAL GALLONS PURGED: 155SAMPLES: Field I.D.Time CollectedContainers & Preservation

## INSTRUMENT CALIBRATION

	Field	Standard
<u>Instrument</u>	<u>measure</u>	<u>measure</u>

Conductivity

pH

pH

Turbidity

Temperature

Depth Probe

SEE LOG FOR  
WELL MW-1

## COMMENTS:

11:20 SET 2" SUBMERSIBLE PUMP  
11:25 INCREASE FLOW RATE  
11:50 DECREASE FLOW RATE

Time	11:13	11:18	11:25	11:30	11:35	11:40	11:45	11:53
Volume Purged (gallons)	20	40	50	70	85	100	115	150
Temperature (degrees F or C)	68.2	70.6	71.5	72.2	70.7	70.9	71.1	70.0
pH	7.51	7.51	7.51	7.42	7.48	7.44	7.49	7.50
Specific Conductivity (us/cm)	1.48	1.46	1.46	1.63	1.92	2.35	2.33	2.35
Turbidity/Color (NTU)	>100	>100	>100	>100	>100	80.1	40.5	4.8
Odor	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
Depth to Water during purge (feet)			45.44'	45.68'	45.76'	45.77'	45.84'	45.64'
Number of Casing Volumes removed								
Purge Rate (gallons/minute)								

PROJECT NAME: WEBB

DATE: 3/4/98

PROJECT NUMBER: 961025.02 WELL NUMBER: MW1 PERSONNEL: RCH

## WELL VOLUME CALCULATION:

Depth of Well (ft.)	Depth to Water (ft.)	Water Column (ft.)	Multiplier (below)	Casing Volume (gallons)
70.00	44.58	= 25.42	* 0.64	=

Mult. for casing diam. = 2-in.=0.16; 4-in.=0.64; 5-in.=1.02; 6-in.=1.44 gals/ft.

No. of bailers prior to start of purge: 0

PURGE METHOD: 2" SUBMERSIBLE PUMP

PURGE DEPTH: 48 feet

START TIME: 13:56 END TIME: 14:40

TOTAL GALLONS PURGED: 55

## INSTRUMENT CALIBRATION

Instrument	Field measure	Standard measure
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Conductivity

pH

pH

Turbidity

Temperature

Depth Probe

SEE LOG FOR  
WELL MW2

SAMPLES: Field I.D.

Time Collected

Containers &amp; Preservation

MW1-0304

14:40

2 x VOA w/HCl

MW1-0304 DUP

14:45

2 x VOA w/HCl

COMMENTS:

Time	14:05	14:11	14:20	14:27	14:33	14:38		
Volume Purged (gallons)	10	20	32	40	50	55		
Temperature (degrees F or C)	69.8	69.1	68.4	68.0	67.4	67.5		
pH	7.43	7.50	7.41	7.52	7.43	7.40		
Specific Conductivity (us/cm)	1.49	1.43	1.43	1.26	1.37	1.38		
Turbidity/Color (NTU)	5.80	6.80	3.76	2.56	1.70	1.56		
Odor								
Depth to Water during purge (feet)	46.38	46.40	46.42	46.43	46.44	-		
Number of Casing Volumes removed								
Purge Rate (gallons/minute)								

GWPURGE.XLS

000871

PROJECT NAME: WEBBDATE: 3/4/98PROJECT NUMBER: 961025.02 WELL NUMBER: MW-2 PERSONNEL: ROH

## WELL VOLUME CALCULATION:

Depth of Well (ft.) ~ 70.00' Depth to Water (ft.) 44.13' Water Column (ft.) = 25.87 Multiplier (below) 0.64 Casing Vol (gallons) = 16.55

Mult. for casing diam. = 2-in.=0.16; 4-in.=0.64; 5-in.=1.02; 6-in.=1.44 gals/ft.

No. of bailers prior to start of purge: 0PURGE METHOD: 2" SUBMERSIBLE PUMPPURGE DEPTH: 47' BGS → 50' BGSSTART TIME: 9:58 END TIME: 11:40TOTAL GALLONS PURGED: 53

## INSTRUMENT CALIBRATION

Instrument	Field measure	Standard measure
Conductivity	1.25	1.00
pH	3.96	4.01
pH	6.93	7.00
Turbidity	0.19	0.2 NTU
Temperature	60.5	
Depth Probe		

SAMPLES: Field I.D.

Time Collected

Containers &amp; Preservation

MW2-030411:452 X VOA w/ HClERB-030411:552 X VOA w/ HCl

## COMMENTS:

10:08 PUMP STOPPED 5 GALLONS PURGED  
10:14 RESISTANT AT PURGE DEPTH 50 FEET

Time	10:19	10:28	10:40	10:49	10:53	11:21	11:36	
Volume Purged (gallons)	15	18	25	28	38	42	50	
Temperature (degrees F or C)	71.1	72.8	74.3	73.2	72.1	72.2	72.1	
pH	6.77	7.31	7.53	7.43	7.42	7.39	7.46	
Specific Conductivity (us/cm)	2.63	2.78	2.72	2.90	2.90	2.90	2.90	
Turbidity/Color (NTU)	17.2	103.5	75.0	46.5	25.5	10.0	2.80	
Odor								
Depth to Water during purge (feet)	47.42	48.10	48.20	48.20	48.20	48.20	-	
Number of Casing Volumes removed								
Purge Rate (gallons/minute)								

PROJECT NAME: WEBB

DATE: 3/4/98

PROJECT NUMBER: 461025.02 WELL NUMBER: MW3 PERSONNEL: RCH

## WELL VOLUME CALCULATION:

Depth of Well (ft.)	Depth to Water (ft.)	Water Column (ft.)	Multiplier (below)	Casing Vol. (gallons)
~ 70.00	44.40'	= 25.6	* 0.64	= 16.38

Mult. for casing diam. = 2-in.=0.16; 4-in.=0.64; 5-in.=1.02; 6-in.=1.44 gals/ft.

No. of bailers prior to start of purge: 0

PURGE METHOD: 2" SUBMERSIBLE PUMP

PURGE DEPTH: 48 feet

START TIME: 12:15 END TIME: 12:56

TOTAL GALLONS PURGED: 55

## INSTRUMENT CALIBRATION

	Field	Standard
Instrument	measure	measure

Conductivity

pH

pH

Turbidity

Temperature

Depth Probe

SEE LOG FOR  
WELL MW2

SAMPLES: Field I.D.

Time Collected

Containers &amp; Preservation

MW3-0304

13:00

3 x VOA w/ HCl

COMMENTS:

Time	12:22	12:28	12:35	12:45	12:51	12:56		
Volume Purged (gallons)	10	20	30	42	50	55		
Temperature (degrees F or C)	69.4	68.5	68.0	68.5	67.4	67.9		
pH	6.78	7.20	7.31	7.27	7.31	7.33		
Specific Conductivity (us/cm)	1.66	1.59	1.62	2.26	2.44	2.46		
Turbidity/Color (NTU)	2.76	12.5	4.56	2.57	2.09	1.90		
Odor								
Depth to Water during purge (feet)								
Number of Casing Volumes removed								
Purge Rate (gallons/minute)								

GWPURGE.XLS

000873



**GROUNDWATER PURGE AND  
WATER QUALITY MONITORING FORM**

**Erler &  
Kalinowski, Inc.**

PROJECT NAME: WEBB DATE: 5/20/98  
PROJECT NUMBER: 961025.02 WELL NUMBER: MW-2 PERSONNEL: ACH

**WELL VOLUME CALCULATION:**

Depth of Well (ft.)	Depth to Water (ft.)	Water Column (ft.)	Multiplier (below)	Casing Vol. (gallons)
<u>70'</u>	<u>43.51'</u>	<u>= 26.49'</u>	<u>* 0.64</u>	<u>= 16.95</u> <u>50.86</u>

Mult. for casing diam. = 2-in.=0.16; 4-in.=0.64; 5-in.=1.02; 6-in.=1.44 gals/ft.

No. of bailers prior to start of purge: 0

PURGE METHOD: 2" SUBMERSIBLE PUMP

PURGE DEPTH: ~ 48' / 9:05 (lowered to 55')

START TIME: 8:41 END TIME: 9:31

TOTAL GALLONS PURGED: 55

**INSTRUMENT CALIBRATION**

Instrument	Field measure	Standard measure
Conductivity	<u>0.92</u>	<u>1.00</u>
pH	<u>4.02</u>	<u>4.01</u>
pH	<u>6.98</u>	<u>7.00</u>
Turbidity	<u>0.19</u>	<u>0.20</u>
Temperature	<u>62.3</u>	<u>63°F</u>
Depth Probe		

Time	<u>8:51</u>	<u>9:01</u>	<u>9:16</u>	<u>9:25</u>				
Volume Purged (gallons)	<u>15</u>	<u>25</u>	<u>40</u>	<u>50</u>				
Temperature (degrees F or C)	<u>67.6</u>	<u>69.2</u>	<u>69.2</u>	<u>70.1</u>				
pH (units)	<u>6.65</u>	<u>7.16</u>	<u>7.16</u>	<u>7.16</u>				
Specific Conductivity (uS/cm)	<u>2.54</u>	<u>3.09</u>	<u>2.93</u>	<u>3.09</u>				
Turbidity/Color (NTU)	<u>23.5</u>	<u>11.90</u>	<u>32.5</u>	<u>7.61</u>				
Odor								
Depth to Water (ft below TOC) during purge	<u>50.7'</u>	<u>52.46</u>						
Number of Casing Volumes removed								
Purge Rate (gallons/minute)								

COMMENTS/ SAMPLES:	Field I.D.	Time Collected	Containers & Preservation	Analyses Requested
	<u>MW-2</u>	<u>9:40</u>	<u>3 x VOA</u>	<u>BZ60</u>
		<u>9:40</u>	<u>1 x AMBER</u>	<u>TDS 160.1</u>

000874

GROUNDWATER PURGE AND  
WATER QUALITY MONITORING FORM

Erler &  
Kalinowski, Inc.

PROJECT NAME: WEBB

DATE: 5/20/98

PROJECT NUMBER: 961025.02

WELL NUMBER: MW-3

PERSONNEL: RCH

WELL VOLUME CALCULATION:

Depth of Well (ft.)	Depth to Water (ft.)	Water Column (ft.)	Multiplier (below)	Casing Vol. (gallons)
70'	43.80'	= 26.20'	* 0.64	= 16.76 gals
Mult. for casing diam. = 2-in.=0.16; 4-in.=0.64; 5-in.=1.02; 6-in.=1.44 gals/ft.				50.3 gals

No. of bailers prior to start of purge: 0

PURGE METHOD: 2" SUBMERSIBLE PUMP

PURGE DEPTH: 50'

START TIME: 10:03

END TIME: 10:26

TOTAL GALLONS PURGED: 55

INSTRUMENT CALIBRATION

	Field	Standard
<u>Instrument</u>	<u>measure</u>	<u>measure</u>
Conductivity	<u>SEE LOG FOR WELL</u>	
pH	<u>MW-2</u>	
pH		
Turbidity		
Temperature		
Depth Probe		

Time	10:10	10:20	10:23	10:25				
Volume Purged (gallons)	20	40	50	55				
Temperature (degrees F or C)	69.6	66.6	67.3	67.5				
pH (units)	7.56	7.25	7.21	7.25				
Specific Conductivity (uS/cm)	1.62	2.35	2.52	2.62				
Turbidity/Color (NTU)	1.34	0.75	0.44	0.31				
Odor								
Depth to Water (ft below TOC) during purge								
Number of Casing Volumes removed								
Purge Rate (gallons/minute)								

COMMENTS/ Field I.D. Time Collected Containers & Preservation Analyses Requested

SAMPLES:

MW-3

10:30

3 x VOA w/ HCl

BZGO

10:30

1 x amber

TDS 160.1

GROUNDWATER PURGE AND  
WATER QUALITY MONITORING FORM

Erler &  
Kalinowski, Inc.

PROJECT NAME: WEBB DATE: 5/20/98  
PROJECT NUMBER: 961025.02 WELL NUMBER: MW-1 PERSONNEL: RCH

WELL VOLUME CALCULATION:

Depth of Well (ft.) 70' - Depth to Water (ft.) 43.99' = Water Column (ft.) 26.01' \* Multiplier (below) 0.64 = Casing Vol. (gallons) 16.64' \* 49.9 gal = 829.9 gal  
Mult. for casing diam. = 2-in.=0.16; 4-in.=0.64; 5-in.=1.02; 6-in.=1.44 gals/ft.

No. of bailers prior to start of purge: 0

PURGE METHOD: 2" SUBMERSIBLE PUMP

PURGE DEPTH: 50'

START TIME: 11:00

END TIME: 11:40

TOTAL GALLONS PURGED: 55

INSTRUMENT CALIBRATION

Instrument	Field measure	Standard measure
Conductivity	<u>SEE LOGS FOR WELL MW-2</u>	
pH		
pH		
Turbidity		
Temperature		
Depth Probe		

Time	<u>11:09</u>	<u>11:16</u>	<u>11:27</u>	<u>11:32</u>	<u>11:40</u>			
Volume Purged (gallons)	<u>10</u>	<u>20</u>	<u>30</u>	<u>40</u>	<u>55</u>			
Temperature (degrees F or C)	<u>68.6</u>	<u>68.7</u>	<u>68.9</u>	<u>69.1</u>	<u>68.2</u>			
pH (units)	<u>7.37</u>	<u>7.38</u>	<u>7.46</u>	<u>7.48</u>	<u>7.49</u>			
Specific Conductivity (uS/cm)	<u>3.18</u>	<u>2.97</u>	<u>2.98</u>	<u>3.05</u>	<u>3.21</u>			
Turbidity/Color (NTU)	<u>1.30</u>	<u>2.25</u>	<u>1.04</u>	<u>0.47</u>	<u>0.40</u>			
Odor								
Depth to Water (ft below TOC) during purge	<u>46.02'</u>	<u>46.1'</u>	<u>46.1'</u>					
Number of Casing Volumes removed								
Purge Rate (gallons/minute)								

COMMENTS/ Field I.D. Time Collected Containers & Preservation Analyses Requested

SAMPLES: MW-1 11:45 3 x VOA w/ HCl 8260  
11:45 1 x amber TDS 160.1

GROUNDWATER PURGE AND  
WATER QUALITY MONITORING FORM

Erler &  
Kalinowski, Inc.

PROJECT NAME: WEBB DATE: 5/20/98  
PROJECT NUMBER: 961025.02 WELL NUMBER: DIAL MW-4 PERSONNEL: RCH  
WELL VOLUME CALCULATION:  
Depth of Well (ft.) 75' - Depth to Water (ft.) 41.36' = Water Column (ft.) 33.64 \* Multiplier (below) 0.64 = Casing Vol. (gallons) 21.52 gal  
Mult. for casing diam. = 2-in.=0.16; 4-in.=0.64; 5-in.=1.02; 6-in.=1.44 gals/ft. 64.6 gal

No. of bailers prior to start of purge: 0

PURGE METHOD: 2" SUBMERSIBLE PUMP

PURGE DEPTH: 45'

START TIME: 13:05

END TIME:

TOTAL GALLONS PURGED:

INSTRUMENT CALIBRATION

Instrument	Field measure	Standard measure
Conductivity	<u>SEE LOG FOR WELL MW-2</u>	
pH		
pH		
Turbidity		
Temperature		
Depth Probe		

Time	<u>13:16</u>	<u>13:26</u>	<u>13:35</u>	<u>13:42</u>				
Volume Purged (gallons)	<u>10</u>	<u>30</u>	<u>55</u>	<u>75</u>				
Temperature (degrees F or C)	<u>74.5</u>	<u>71.9</u>	<u>72.6</u>	<u>71.2</u>				
pH (units)	<u>7.32</u>	<u>7.25</u>	<u>7.29</u>	<u>7.22</u>				
Specific Conductivity (uS/cm)	<u>2.98</u>	<u>2.36</u>	<u>2.57</u>	<u>2.60</u>				
Turbidity/Color (NTU)	<u>2.5</u>	<u>0.60</u>	<u>1.14</u>	<u>1.30</u>				
Odor								
Depth to Water (ft below TOC) during purge	<u>42.36</u>	<u>42.98</u>						
Number of Casing Volumes removed								
Purge Rate (gallons/minute)								

COMMENTS/ Field I.D. Time Collected Containers & Preservation Analyses Requested

SAMPLES: DIAL MW-4 13:55 3x VOA w/HCl 8260  
13:55 1 canister TDS 160.1

GROUNDWATER PURGE AND  
WATER QUALITY MONITORING FORM

Erlar &  
Kalinowski, Inc.

PROJECT NAME: \_\_\_\_\_ DATE: **5/20/98**

PROJECT NUMBER: **961025.02** WELL NUMBER: **DIAL MW-5** PERSONNEL: **RCH**

WELL VOLUME CALCULATION:

Depth of Well (ft.)	Depth to Water (ft.)	Water Column (ft.)	Multiplier (below)	Casing Vol. (gallons)
<b>75'</b>	<b>44.88'</b>	<b>= 30.22</b>	<b>* 0.64</b>	<b>=</b>

Mult. for casing diam. = 2-in.=0.16; 4-in.=0.64; 5-in.=1.02; 6-in.=1.44 gals/ft.

No. of bailers prior to start of purge: **0**

PURGE METHOD: **2" SUBMERSIBLE PUMP**

PURGE DEPTH: **47'**

START TIME: **14:18**

END TIME: **15:15**

TOTAL GALLONS PURGED: **80**

INSTRUMENT CALIBRATION

Instrument	Field measure	Standard measure
Conductivity		
pH	<b>SEE LOG FOR WELL MW-2</b>	
pH		
Turbidity		
Temperature		
Depth Probe		

Time	<b>14:22</b>	<b>14:32</b>	<b>14:46</b>	<b>14:52</b>	<b>14:56</b>	<b>15:06</b>		
Volume Purged (gallons)	<b>14:10</b>	<b>20</b>	<b>30</b>	<b>40</b>	<b>55</b>	<b>65</b>		
Temperature (degrees F or C)	<b>71.5</b>	<b>70.4</b>	<b>69.6</b>	<b>69.8</b>	<b>69.8</b>	<b>69.8</b>		
pH (units)	<b>7.13</b>	<b>7.10</b>	<b>7.05</b>	<b>7.09</b>	<b>7.10</b>	<b>7.05</b>		
Specific Conductivity (uS/cm)	<b>6.21</b>	<b>6.93</b>	<b>7.14</b>	<b>7.35</b>	<b>7.34</b>	<b>7.29</b>		
Turbidity/Color (NTU)	<b>2.45</b>	<b>1.54</b>	<b>4.33</b>	<b>1.75</b>	<b>1.66</b>	<b>0.75</b>		
Odor	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>		
Depth to Water (ft below TOC) during purge	<b>47.50</b>	<b>48.76</b>						
Number of Casing Volumes removed								
Purge Rate (gallons/minute)								

COMMENTS/ Field I.D. Time Collected Containers & Preservation Analyses Requested

SAMPLES:

**DIAL MW.5**

**15:20**

**3 x VOA w/HCl**

**8260**

**15:20**

**1 x amber**

**TDS 160.1**

**Appendix B**

**Laboratory Reports and Chain-of-Custody Forms  
for Soil Sampling**

**D**

**Appendix D**

**Laboratory Reports and Chain-of-Custody Forms  
for Groundwater Sampling**

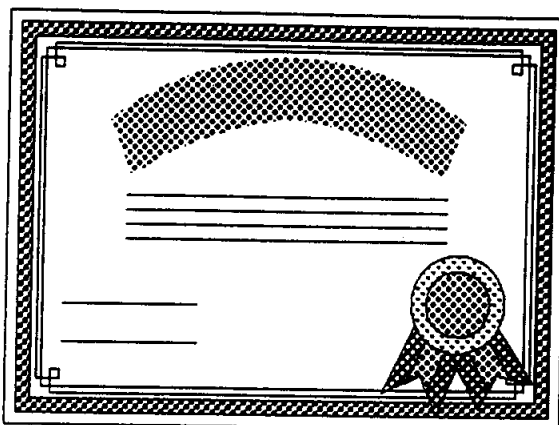




**ORANGE COAST ANALYTICAL, INC.**

3002 Dow, Suite 532, Tustin, CA 92780 (714) 832-0064 Fax (714) 832-0067  
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**ERLER & KALINOWSKI, INC.  
SANTA MONICA OFFICE**

ORANGE COAST ANALYTICAL THANKS YOU FOR YOUR BUSINESS

**THE FOLLOWING PAGES ARE THE ANALYSIS REPORT**

**ON THE SAMPLES YOU REQUESTED.**

**IF YOU HAVE ANY QUESTIONS REGARDING THIS REPORT**

**PLEASE FEEL FREE TO CONTACT US.**

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**ORANGE COAST ANALYTICAL, INC.**

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**LABORATORY REPORT FORM**

Laboratory Name: ORANGE COAST ANALYTICAL, INC.

Address: 3002 Dow Suite 532 Tustin, CA 92780

Telephone: (714) 832-0064

Laboratory Certification

(ELAP) No.: 1416

Expiration Date: 1999

Laboratory Director's Name (Print): Mark Noorani

Client: Erler & Kalinowski, Inc.

Project No.: 961025.0

Project Name: Webb

Laboratory Reference: EKI 10001

Analytical Method: EPA 8260

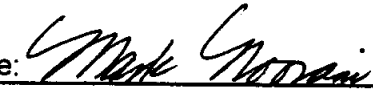
Date Sampled: 03/04/98

Date Received: 03/05/98

Date Reported: 03/11/98

Sample Matrix: Water

Chain of Custody Received: Yes

Laboratory Director's Signature: 

**ORANGE COAST ANALYTICAL, INC.**

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**ANALYTICAL TEST RESULTS 8260**

Reporting Unit: ug/l

DATE ANALYZED		03/09/98	03/09/98	03/09/98	03/09/98
DILUTION FACTOR			20	1	20
LAB SAMPLE I.D.			98030043	98030044	98030045
CLIENT SAMPLE I.D.			MW2-0304	ERB-0304	MW3-0304
COMPOUND	MDL	MB			
Acetone	<2.0	<2.0	<2.0	<2.0	<2.0
Benzene	<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	<0.5	<0.5	<0.5	<0.5	<0.5
Bromoform	<0.5	<0.5	<0.5	<0.5	<0.5
Bromomethane	<1.0	<1.0	<1.0	<1.0	<1.0
2-Butanone	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon Disulfide	<0.5	<0.5	<0.5	<0.5	<0.5
Carbon Tetrachloride	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorobenzene	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorodibromomethane	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroethane	<0.5	<0.5	<0.5	<0.5	<0.5
2-Chloroethyl vinyl ether	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	<0.5	<0.5	<0.5	<0.5	<0.5
Chloromethane	<0.5	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethane	<0.5	<0.5	13	<0.5	14
1,2-Dichloroethane	<0.5	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethene	<0.5	<0.5	34	<0.5	82
cis 1,2-Dichloroethene	<0.5	<0.5	65	<0.5	200
Trans 1,2-Dichloroethene	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane	<0.5	<0.5	<0.5	<0.5	<0.5
cis-1,3-Dichloropropene	<0.5	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropene	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	<0.5	<0.5	<0.5	<0.5	<0.5
2-Hexanone	<1.0	<1.0	<1.0	<1.0	<1.0
Methylene chloride	<2.5	<2.5	<2.5	<2.5	<2.5
4-Methyl-2-pentanone	<1.0	<1.0	<1.0	<1.0	<1.0
Styrene	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	<0.5	<0.5	<0.5	<0.5	13
1,1,1-Trichloroethane	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2-Trichloroethane	<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethene	<0.5	<0.5	2,700	1.3	2,800
Trichlorofluoromethane	<0.5	<0.5	<0.5	<0.5	<0.5
Vinyl acetate	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	<0.5	<0.5	<0.5	<0.5	<0.5
Total Xylenes	<0.5	<0.5	<0.5	<0.5	<0.5

SURROGATE	SPK	ACP%	MB			
RECOVERY	CONC		%RC			
Dibromofluoromethane	20	86-118	117	102	101	105
Toluene-d8	20	88-110	93	97	97	98
4-Bromofluorobenzene	20	86-115	102	101	101	101

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**ANALYTICAL TEST RESULTS 8260**

Reporting Unit: ug/l

DATE ANALYZED		03/09/98	03/09/98	03/09/98
DILUTION FACTOR			200	200
LAB SAMPLE I.D.			98030046	98030047
CLIENT SAMPLE I.D.			MW1-0304	MW1-0304 DUP
COMPOUND	MDL	MB		
Acetone	<2.0	<2.0	<2.0	<2.0
Benzene	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	<0.5	<0.5	<0.5	<0.5
Bromoform	<0.5	<0.5	<0.5	<0.5
Bromomethane	<1.0	<1.0	<1.0	<1.0
2-Butanone	<1.0	<1.0	<1.0	<1.0
Carbon Disulfide	<0.5	<0.5	<0.5	<0.5
Carbon Tetrachloride	<0.5	<0.5	<0.5	<0.5
Chlorobenzene	<0.5	<0.5	<0.5	<0.5
Chlorodibromomethane	<0.5	<0.5	<0.5	<0.5
Chloroethane	<0.5	<0.5	<0.5	<0.5
2-Chloroethyl vinyl ether	<1.0	<1.0	<1.0	<1.0
Chloroform	<0.5	<0.5	<0.5	<0.5
Chloromethane	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethane	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethane	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethene	<0.5	<0.5	220	210
cis 1,2-Dichloroethene	<0.5	<0.5	130	150
Trans 1,2-Dichloroethene	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane	<0.5	<0.5	<0.5	<0.5
cis-1,3-Dichloropropene	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropene	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	<0.5	<0.5	<0.5	<0.5
2-Hexanone	<1.0	<1.0	<1.0	<1.0
Methylene chloride	<2.5	<2.5	<2.5	<2.5
4-Methyl-2-pentanone	<1.0	<1.0	<1.0	<1.0
Styrene	<0.5	<0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	<0.5	<0.5	140	160
Toluene	<0.5	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	<0.5	<0.5	<0.5	<0.5
1,1,2-Trichloroethane	<0.5	<0.5	<0.5	<0.5
Trichloroethene	<0.5	<0.5	24,000	25,000
Trichlorofluoromethane	<0.5	<0.5	<0.5	<0.5
Vinyl acetate	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	<0.5	<0.5	<0.5	<0.5
Total Xylenes	<0.5	<0.5	<0.5	<0.5

SURROGATE	SPK	ACP%	MB		
RECOVERY	CONC		%RC		
Dibromofluoromethane	20	86-118	117	107	107
Toluene-d8	20	88-110	93	97	97
4-Bromofluorobenzene	20	86-115	102	100	101

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**ORANGE COAST ANALYTICAL, INC.**

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**8260 QA / QC REPORT**Reporting Unit :  $\mu\text{g/l}$ **1. Matrix Spike (MS) / Matrix Spike Duplicate (MSD)**

Date Performed : 03/09/98

Batch # :

LAB Sample I. D. : OCA 100

Analyte	R1	SP CONC	MS	MSD	%MS	%MSD	RPD	ACP %MS	ACP RPD
1,1-Dichloroethene	0.0	20	19	21	95	105	10	61-145	14
Benzene	0.0	20	18	19	90	95	5	76-127	11
Trihaloroethene	0.0	20	18	19	90	95	5	71-120	14
Toluene	0.0	20	17	19	85	95	11	76-125	13
Chlorobenzene	0.0	20	18	19	90	95	5	75-130	13

R1 = Result of Laboratory Sample I.D.

SPK CONC = Spiking Concentration ( $\leq 5 \times \text{PQL}$ ) ; PQL = Practical Quantitation Limit.

MS = Matrix Spike Result

MSD = Matrix Spike Duplicate Result

%MS = Percent Recovery of MS:  $\{(\text{MS}-\text{R1})/\text{SP}\} \times 100$ .%MSD = Percent Recovery of MSD:  $\{(\text{MSD}-\text{R1})/\text{SP}\} \times 100$ .RPD = Relative Percent Difference:  $\{(\text{MS} - \text{MSD})/(\text{MS} + \text{MSD})\} \times 100 \times 2$ 

ACP%MS(MSD) = Acceptable Range of Percent.

ACP RPD = Acceptable Relative Percent Difference

**2. Laboratory Quality Control check sample**

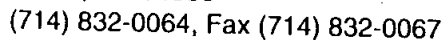
Date Performed : 03/09/98

Batch # :

LAB Sample I. D. : OCA 4358

ANALYTE	SPK CONC	RESULTS	%RECOVERY	ACP %
1,1-Dichloroethane	50	59	118	80 -120
Carbon tetrachloride	50	53	106	80 -120
Ethylbenzene	50	52	104	80 -120
Tetrachloroethane	50	49	98	80 -120

ANALYST: Kelly NaitoDATE: 03/09/98

Page 1 of 1

REQUIRED TAT: ONE WEEK 3/11/98

[illegible]

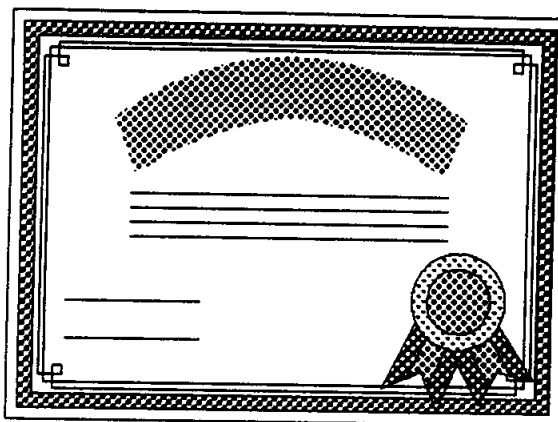
All samples remain the property of the client who is responsible for disposal. A disposal fee may be imposed if the client fails to return the sample.

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**LABORATORY REPORT FORM**

Laboratory Name: ORANGE COAST ANALYTICAL, INC.

Address: 3002 Dow Suite 532 Tustin, CA 92780

Telephone: (714) 832-0064

Laboratory Certification

(ELAP) No.: 1416

Expiration Date: 1999

Laboratory Director's Name (Print): Mark Noorani

Client: Erler & Kalinowski, Inc.

Project No.: 961025.02

Project Name: Webb

Laboratory Reference: EKI 10210

Analytical Method: EPA 8260

Date Sampled: 05/20/98

Date Received: 05/20/98

Date Reported: 05/29/98

Sample Matrix: Water

Chain of Custody Received: Yes

Laboratory Director's Signature: *Mark Noorani*



**ORANGE COAST ANALYTICAL, INC.**

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 4620 E. Elwood, Suite 4, Phoenix, AZ 85040 (602) 736-0960 Fax (602) 736-0970

**ANALYTICAL TEST RESULTS 8260**

Reporting Unit: ug/l

DATE ANALYZED		05/28/98	05/28/98	05/28/98	05/28/98
DILUTION FACTOR		1	20	20	250
LAB SAMPLE I.D.			98050188	98050189	98050190
CLIENT SAMPLE I.D.			MW-2	MW-3	MW-1
COMPOUND	MDL	MB			
Acetone	2.0	2.0	<40	<40	<500
Benzene	0.5	0.5	<10	<10	<125
Bromodichloromethane	0.5	0.5	<10	<10	<125
Bromoform	0.5	0.5	<10	<10	<125
Bromomethane	1.0	1.0	<1.0	<1.0	<250
2-Butanone	1.0	1.0	<1.0	<1.0	<250
Carbon Disulfide	0.5	0.5	<10	<10	<125
Carbon Tetrachloride	0.5	0.5	<10	<10	<125
Chlorobenzene	0.5	0.5	<10	<10	<125
Chlorodibromomethane	0.5	0.5	<10	<10	<125
Chloroethane	0.5	0.5	<10	<10	<125
2-Chloroethyl vinyl ether	1.0	1.0	<20	<20	<250
Chloroform	0.5	0.5	<10	<10	<125
Chloromethane	0.5	0.5	<10	<10	<125
1,1-Dichloroethane	0.5	0.5	14	13	<125
1,2-Dichloroethane	0.5	0.5	<10	<10	<125
1,1-Dichloroethene	0.5	0.5	38	58	160
cis 1,2-Dichloroethene	0.5	0.5	68	230	130
Trans 1,2-Dichloroethene	0.5	0.5	<10	15	<125
1,2-Dichloropropane	0.5	0.5	<10	<10	<125
cis-1,3-Dichloropropene	0.5	0.5	<10	<10	<125
trans-1,3-Dichloropropene	0.5	0.5	<10	<10	<125
Ethylbenzene	0.5	0.5	<10	<10	<125
2-Hexanone	1.0	1.0	<20	<20	<250
Methylene chloride	2.5	5.9	<50	<50	<625
4-Methyl-2-pentanone	1.0	1.0	<20	<20	<250
Styrene	0.5	0.5	<10	<10	<125
1,1,2,2-Tetrachloroethane	0.5	0.5	<10	<10	<125
Tetrachloroethene	0.5	0.5	<10	<10	<125
Toluene	0.5	0.5	<10	<10	<125
1,1,1-Trichloroethane	0.5	0.5	<10	<10	<125
1,1,2-Trichloroethane	0.5	0.5	<10	<10	<125
Trichloroethene	0.5	0.5	3,000	2,800	24,000
Trichlorofluoromethane	0.5	0.5	<10	<10	<125
Vinyl acetate	1.0	1.0	<20	<20	<250
Vinyl Chloride	0.5	0.5	<10	<10	<125
Total Xylenes	0.5	0.5	<10	<10	<125

SURROGATE	SPK	ACP%	MB			
RECOVERY	CONC		%RC			
Dibromofluoromethane	20	86-118	93	104	96	94
Toluene-d8	20	88-110	90	97	90	90
4-Bromofluorobenzene	20	86-115	94	97	95	94

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**ANALYTICAL TEST RESULTS 8260**

Reporting Unit: ug/l

DATE ANALYZED		05/28/98	05/28/98	05/28/98
DILUTION FACTOR		1	1	1
LAB SAMPLE I.D.			98050191	98050192
CLIENT SAMPLE I.D.			Dial MW-4	Dial MW-5
COMPOUND	MDL	MB		
Acetone	2.0	2.0	<2.0	<2.0
Benzene	0.5	0.5	<0.5	11
Bromodichloromethane	0.5	0.5	<0.5	<0.5
Bromoform	0.5	0.5	<0.5	<0.5
Bromomethane	1.0	1.0	<1.0	<1.0
2-Butanone	1.0	1.0	<1.0	<1.0
Carbon Disulfide	0.5	0.5	<0.5	<0.5
Carbon Tetrachloride	0.5	0.5	<0.5	<0.5
Chlorobenzene	0.5	0.5	<0.5	<0.5
Chlorodibromomethane	0.5	0.5	<0.5	<0.5
Chloroethane	0.5	0.5	<0.5	<0.5
2-Chloroethyl vinyl ether	1.0	1.0	<1.0	<1.0
Chloroform	0.5	0.5	<0.5	<0.5
Chloromethane	0.5	0.5	<0.5	<0.5
1,1-Dichloroethane	0.5	0.5	<0.5	<0.5
1,2-Dichloroethane	0.5	0.5	1.2	<0.5
1,1-Dichloroethene	0.5	0.5	<0.5	<0.5
cis 1,2-Dichloroethene	0.5	0.5	0.96	8.7
Trans 1,2-Dichloroethene	0.5	0.5	<0.5	1.1
1,2-Dichloropropane	0.5	0.5	<0.5	<0.5
cis-1,3-Dichloropropene	0.5	0.5	<0.5	<0.5
trans-1,3-Dichloropropene	0.5	0.5	<0.5	<0.5
Ethylbenzene	0.5	0.5	<0.5	<0.5
2-Hexanone	1.0	1.0	<1.0	<1.0
Methylene chloride	2.5	5.9	<2.5	<2.5
4-Methyl-2-pentanone	1.0	1.0	<1.0	<1.0
Styrene	0.5	0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	0.5	0.5	<0.5	<0.5
Tetrachloroethene	0.5	0.5	<0.5	<0.5
Toluene	0.5	0.5	0.77	0.93
1,1,1-Trichloroethane	0.5	0.5	<0.5	<0.5
1,1,2-Trichloroethane	0.5	0.5	<0.5	<0.5
Trichloroethene	0.5	0.5	16	28
Trichlorofluoromethane	0.5	0.5	<0.5	<0.5
Vinyl acetate	1.0	1.0	<1.0	<1.0
Vinyl Chloride	0.5	0.5	<0.5	<0.5
Total Xylenes	0.5	0.5	0.64	0.73

SURROGATE	SPK	ACP%	MB		
RECOVERY	CONC		%RC		
Dibromofluoromethane	20	86-118	93	92	93
Toluene-d8	20	88-110	90	90	90
4-Bromofluorobenzene	20	86-115	94	95	95

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**ORANGE COAST ANALYTICAL, INC.**

3002 Dow, Suite 532, Tustin, CA 92780 (714) 832-0064 Fax (714) 832-0067  
4620 E. Elwood, Suite 4, Phoenix, AZ 85040 (602) 736-0960 Fax (602) 736-0970

**8260 QA / QC REPORT**Reporting Unit:  $\mu\text{g/l}$ **1. Matrix Spike (MS) / Matrix Spike Duplicate (MSD)**

Date Performed :05/28/98

LAB Sample I.D. : 98050196

Analyte	R1	SP CONC	MS	MSD	%MS	%MSD	RPD	ACP %MS	ACP RPD
1,1-Dichloroethene	0.0	20	15	14	75	70	7	61-145	14
Benzene	0.0	20	18	17	90	85	6	76-127	11
Trihaloroethene	0.0	20	18	17	90	85	6	71-120	14
Toluene	0.0	20	18	17	90	85	6	76-125	13
Chlorobenzene	0.0	20	18	18	90	90	0	75-130	13

R1 = Result of Laboratory Sample I.D.

SPK CONC = Spiking Concentration ( $\leq 5 \times \text{PQL}$ ) ; PQL = Practical Quantitation Limit.

MS = Matrix Spike Result

MSD = Matrix Spike Duplicate Result

%MS = Percent Recovery of MS:  $\{(\text{MS}-\text{R1})/\text{SP}\} \times 100$ .%MSD = Percent Recovery of MSD:  $\{(\text{MSD}-\text{R1})/\text{SP}\} \times 100$ .RPD = Relative Percent Difference:  $\{(\text{MS} - \text{MSD})/(\text{MS} + \text{MSD})\} \times 100 \times 2$ 

ACP%MS(MSD) = Acceptable Range of Percent.

ACP RPD = Acceptable Relative Percent Difference

**2. Laboratory Quality Control check sample**

Date Performed : 05/28/98

LAB Sample I.D. : 98050196

ANALYTE	SPK CONC	RESULTS	%RECOVERY	ACP %
1,1-Dichloroethane	50	54	108	80 -120
Carbon tetrachloride	50	53	106	80 -120
Ethylbenzene	50	50	100	80 -120
Tetrachloroethene	50	50	100	80 -120

ANALYST: Kelly Naito

DATE: 05/28/98

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**Erler & Kalinowski, Inc.**

ATTN: Mr. Rob Hesse  
2951 28th St. Suite 1020  
Santa Monica, CA 90405

**Client Project ID:** Webb

**Client Project #:** 961025.02

**Sample Description:** Water,

**Laboratory Reference #:** EKI 10210

**Sampled:** 05/20/98

**Received:** 05/20/98

**Analyzed:** 05/21/98

**Reported:** 05/28/98

**TOTAL DISSOLVED SOLIDS (EPA 160.1)**

<b>LABORATORY SAMPLE NUMBER</b>	<b>CLIENT SAMPLE NUMBER</b>	<b>SAMPLE RESULTS mg/l</b>
98050188	MW-2	2,500
98050189	MW-3	1,100
98050190	MW-1	1,500
98050191	Dial MW-4	1,300
98050192	Dial MW-5	6,300

**Detection Limit**

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Orange Coast Analytical

Mark Noorani

Laboratory Director

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**ORANGE COAST ANALYTICAL, INC.**

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**QC DATA REPORT**

Analysis : Inorganics

Date of Analysis : 05/21/98

Laboratory Sample No : 98050192

Laboratory Reference No : EKI 10210

Analyte	R1 (ppm)	SP (ppm)	MS (ppm)	MSD (ppm)	PR1 %	PR2 %	RPD %
TDS	6,300	1,000	7,400	7,200	110	90	3

Definition of Terms :

R1	Results Of First Analysis
SP	Spike Concentration Added to Sample
MS	Matrix Spike Results
MSD	Matrix Spike Duplicate Results
PR1	Percent Recovery Of MS: $\{(MS-R1) / SP\} \times 100$
PR2	Percent Recovery Of MSD: $\{(MSD-R1) / SP\} \times 100$
RPD	Relative Percent Difference: $\{(MS-MSD) / (MS+MSD)\} \times 100 \times 2$

ORANGE COAST ANALYTICAL

MARK NOORANI  
Laboratory Director

000894



**ORANGE COAST ANALYTICAL, INC.**  
3002 Dow, Suite 532  
Tustin, CA 92680  
(714) 832-0064, Fax (714) 832-0067

# Analysis Request and Chain of Custody Record

Lab Job No: \_\_\_\_\_  
Page 1 of 1

REQUIRED TAT: NORMAL

CUSTOMER INFORMATION			PROJECT INFORMATION						ANALYSIS/METHOD REQUEST										REMARKS/PRECAUTIONS
COMPANY: <u>ERICK + CALINCHSKI, INC.</u>			PROJECT NAME: <u>HEBB</u>						<div>926.0 VOCs</div> <div>160.1 TDS</div>										
SEND REPORT TO: <u>ROB HESSE</u>			NUMBER: <u>961025.02</u>																
ADDRESS: <u>2751 28TH ST STE 1020</u>			LOCATION: <u>1020 FIRESTONE BLVD.</u>																
CITY: <u>IRVINE, CA 92614</u>			ADDRESS: <u>28TH ESTATE</u>																
PHONE: <u>949 275-5555</u> FAX: <u>949 275-5550</u>			SAMPLED BY: <u>ROB HESSE</u>																
SAMPLE ID	NO. OF CONTAINERS	SAMPLE DATE	SAMPLE TIME	SAMPLE MATRIX	CONTAINER TYPE	PRES.													
<u>HW-2</u>	<u>3</u>	<u>5/20/98</u>	<u>9:40</u>	<u>LV</u>	<u>VCA</u>	<u>HCl</u>	<u>x</u>										<u>HOLD REMAINING</u>		
<u>HW-2</u>	<u>1</u>		<u>9:40</u>		<u>IL</u>			<u>x</u>									<u>SAMPLE FOR FURTHER ANALYSIS</u>		
<u>HW-2</u>	<u>3</u>		<u>10:20</u>		<u>VCA</u>	<u>HCl</u>	<u>x</u>												
<u>HW-2</u>	<u>1</u>		<u>10:20</u>		<u>IL</u>			<u>x</u>											
<u>HW-1</u>	<u>3</u>		<u>11:45</u>		<u>VOA</u>	<u>HCl</u>	<u>x</u>												
<u>HW-1</u>	<u>1</u>		<u>11:45</u>		<u>IL</u>			<u>x</u>											
<u>DIAL HW-4</u>	<u>3</u>		<u>12:55</u>		<u>VOA</u>	<u>HCl</u>	<u>x</u>												
<u>DIAL HW-4</u>	<u>1</u>		<u>12:55</u>		<u>IL</u>			<u>x</u>											
<u>DIAL HW-5</u>	<u>3</u>		<u>15:20</u>		<u>VOA</u>	<u>HCl</u>	<u>x</u>												
<u>DIAL HW-5</u>	<u>1</u>		<u>15:20</u>		<u>IL</u>			<u>x</u>											
<u>TB-1</u>	<u>1</u>		<u>6:00</u>		<u>VCA</u>												<u>HOLD</u>		
Total No. of Samples: <u>20</u>			Method of Shipment:																
Relinquished By: <u>Rob Hesse</u> Date/Time: <u>5/20/98 17:00</u>			Received By: _____ Date/Time: _____										Reporting Format: (check) NORMAL _____ S.D. HMMD _____ RWQCB <u>X</u> OTHER _____						
Relinquished By: _____ Date/Time: _____			Received By: _____ Date/Time: _____										Sample Integrity: (check) intact _____ on ice _____						
Relinquished By: _____ Date/Time: _____			Received For Lab By: <u>M. Van Nieuwen</u> Date/Time: <u>5/20/98 5:00 P.M.</u>																

All samples remain the property of the client who is responsible for disposal. A disposal fee may be assessed.

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